THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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THE IRON AGE

New York, Thursday, October 26, 1905.

The Ridgway Heavy Driving Wheel Lathe.

Remarkable Tests of Its Efficiency.

Pursuing the purpose which brought it into existence, that of building machine tools adapted to use the new high duty tool steels, the Ridgway Machine Tool Company, Ridgway, Pa., has added to its line another high duty tool in the form of a 90-inch driving wheel lathe. A very successful demonstration of the machine was made last Thursday at the Ridgway works before a party of prominent engineers, among whom were the following: R. T. Shea, inspector of machinery and tools of the Vanderbilt lines; C. H. Hogan, superintendent of motive power, Western Division, New York Central & Hudson River Railroad; James Horton, master mechanic, Homestead Works, Carnegie Steel Company; John Flemming, master foreman, and John Parsons, tire lathe operator, Depew Shops, New York Central & Hudson River Railroad; William Eberhardt, assistant foreman, wheel shop, Pennsylvania Railroad, Altoona, Pa.; C. H. Potts, master mechanic, and C. H. Miller, general foreman, Renovo Shops, Pennsylvania Railroad, Renovo, Pa; O. P. Meckel and H. L. Paulus, Baird Machinery Company, Pittsburgh, Pa.; and C. A. Goodspeed, Prentiss Tool & Supply Company, New York.

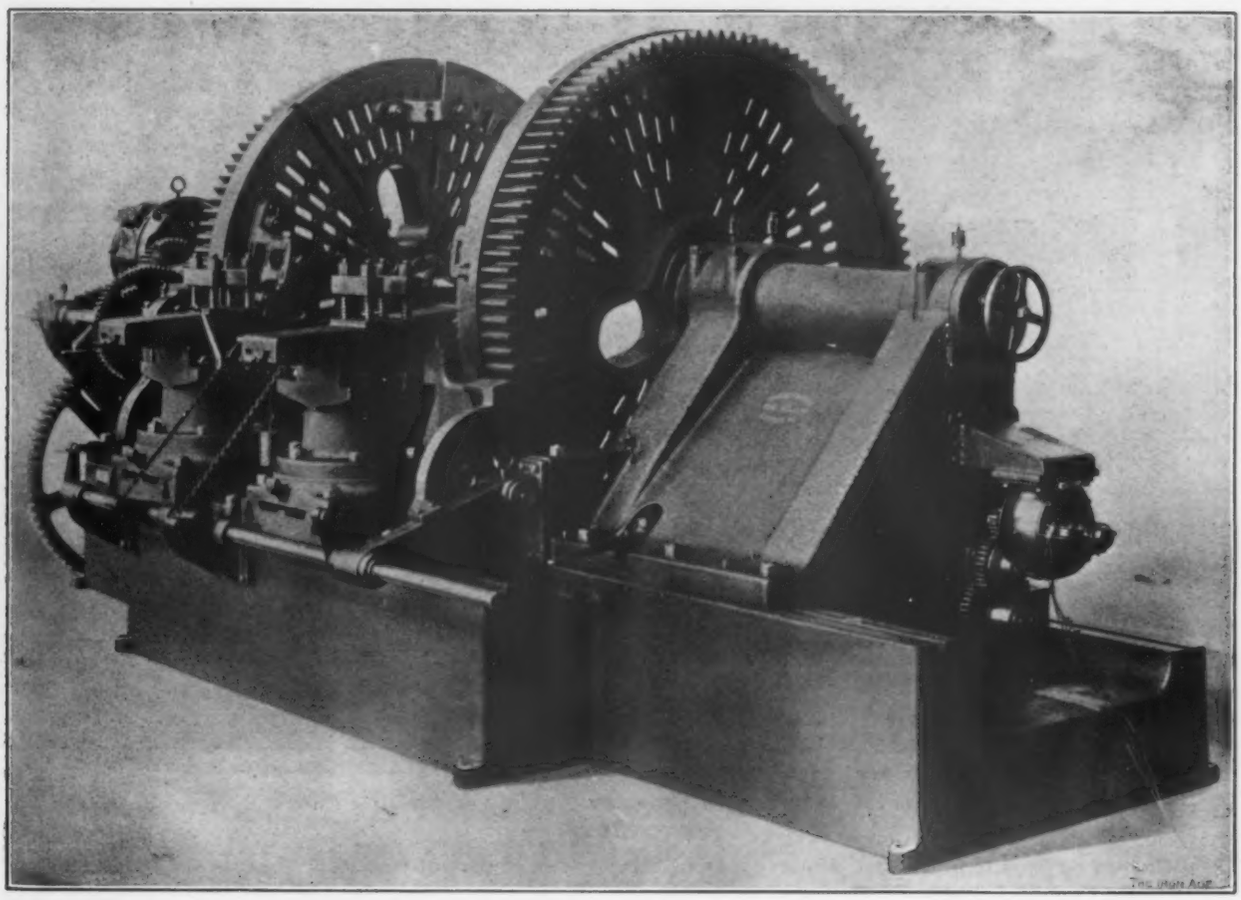


Fig. 1.—The New 90-Inch Heavy Driving Wheel Lathe Built by the Ridgway Machine Tool Company, Ridgway, Pa.

The Tests.

The first test consisted of the turning of a pair of very badly worn locomotive driving wheels 57 inches in diameter in 59 minutes actual cutting time. Six minutes were consumed in placing the wheels in the lathe and they were taken off in four minutes, making the time for the complete operation one hour and nine minues. The machine stood on the floor of the shop without any fastening and it was necessary to operate it from a platform, consequently it was not possible to force the machine to the extent that would have been possible had it been properly placed on a suitable foundation. In all the tests the ability of the machine proved more than commensurate with the capabilities of the tool steels, for it rigidly stood up to the point of failure of every tool used.

The wheels used in the tests were furnished by the New York Central & Hudson River Railroad Company and were worn about as badly as any that would ever be met with in practice, these being selected to try the tool under the most severe conditions.

Cutting on the first pair of wheels was commenced with a feed of 7-32 inch, a cut ½ inch deep and a cutting speed of 7½ feet per minute, the tools being of a well-known brand of high duty steel. After running 1½ inches over the treads of the tires the speed was increased to 11 feet per minute and the feed to ¼ inch. When the treads had been faced to a width of 3 inches the tools gave out, the speed having been increased to 14 feet per minute. Another well-known brand of high speed steel was then used, the first tool giving out in three minutes, the second in seven minutes and the third in three minutes. At this time the tools were cutting the extremely hard surface

near the flanges. With another brand of steel the turning of the flanges was commenced and they were finished in 44 minutes. One hour and 28 minutes covered the cutting time, including the replacing of tools. In this time 250 pounds of metal were removed and the power consumed by the lathe varied from 6 to 26 horse-power. The machine was operated by Lewis H. Morgan, superintendent and general manager of the Ridgway Machine Tool Company.

In another test the machine was operated by an expert tire turner, John Parsons, from the Depew Shops of the New York Central. Cutting was commenced at the rate of 16 feet per minute, the feed being ⅛ inch and the cut ½ inch deep. When the tools had traversed 1½ inches across the treads the feed was increased to ¼ inch and one of the tools shortly gave out. Two more tools broke down before the cutting was finished. This strain has been made short and stocky. For instance, the clamping devices or driving dogs and face plates are so designed that the wheels come close to the face plates and the rests are arranged to give very little overhang to the tools. This scheme of compactness is adhered to in every detail of the design.

The bed is of box form with internal ribs and the front is extended beyond the main body to give solid support for the rests. The left hand head, also of box section and ribbed, carries the primary driving gearing and is securely bolted to the bed. Recesses in both face plates admit the crank pins to allow the wheels, as before stated, to be brought close to the face plates and so diminish the overhang of the centers. The centers are carried in steel spindles 7 inches in diameter, sliding in the main spindle, and are clamped at the front ends by conical split bushings, insuring perfect rigidity.

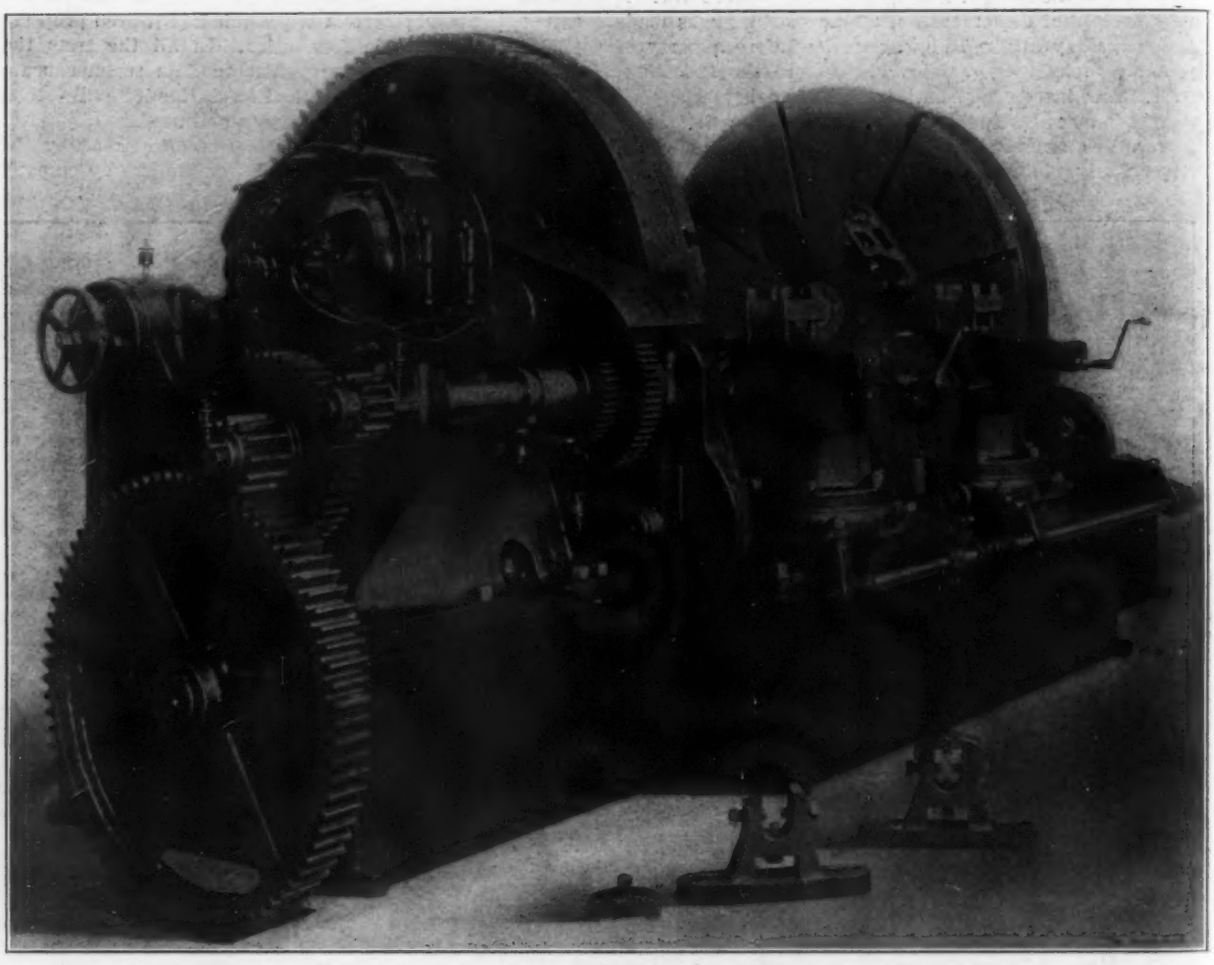


Fig. 2.—Another View of the Tool, Taken from the Driving Head End.—Also Shows the Parts of the Chucking Devices.

was the test referred to in the first paragraph, for which the cutting time, including the replacing of tools, was 59 minutes. The metal removed amounted to 180 pounds, the power consumed being the same as in the previous test. The difference in time between the first and second tests may be attributed to the fact that the first pair of wheels was much more worn, as is shown by the large amount of metal removed. The metal was also considerably harder, necessitating the reducing of speed very considerably when the hard spots were encountered in order to prevent the destruction of the tools.

Description of the Machine.

The machine on which these tests were made is illustrated in Figs. 1 and 2, driven by a Thompson-Ryan variable speed motor having a range of four to one. The advantage of the variable speed motor is that the speed can be conveniently changed instantly to meet varying conditions of the tire. A glance at the illustrations of the machine impresses one with its apparent strength and rigidity. It will be seen that every part subject to

An important feature is found in the mechanism employed in traversing the right head or tail back and forth. A small electric motor is conveniently hung on a bracket attached to the tail stock and is geared directly to the traversing screw. One gear of this train is arranged to slip at a certain point so that it is possible to run the motor at full speed, bringing up the center at a rapid rate solidly into place in the axle without the necessity of slowing down or stopping the motor. The power of this device can be adjusted so that sufficient force is applied, thus avoiding the necessity of adjusting the centers by means of the hand wheels furnished.

The rests are of rigid construction and are clamped to the bed by six 1½-inch bolts. The side next to the face plate is cut away on the top and reinforced on the under side so as to allow the driving dogs to be brought as near the rim of the wheel as possible. The tool blocks have swiveling compound slides with power feed in any direction, and can be set so as to turn wheels from 48 inches to 90 inches in diameter. The right hand rest is

provided with power traverse by means of a link connecting it to the tail stock head.

The driving dogs are of novel character, the idea being to grip the rims firmly, and by means of a cap, which is slipped on after the wheels are in place, buckling or distorting of the wheels is prevented and a rigid drive is obtained. There are driving dogs on each plate; two are shown in the foreground (Fig. 2), one having the cap removed. The feed is taken directly from the face plate, and the feed lever being close to the operator it is possible to adjust the amount of feed without leaving the work.

The face plates can be driven independently or in unison as desired. All running bearings are bushed with bronze. The face plate pinion is forged steel and runs in a sleeve which is bronze lined. It is withdrawn from mesh with the face plate gear for journal turning by a lever in the front of the head. The speeds of the face plate are in correct geometrical ratio for tires, giving cutting speed of 5 feet 6 inches per minute on a 90-inch diameter to 34 feet per minute on a 48-inch diameter. The remaining ten speeds are in correct geometrical ratio for journals, giving 32 feet per minute cutting speed on 5-inch journals to 6 feet per minute on 10-inch journals.

The journal rest is carried on the two inner members of the main rest and has two tool blocks with cross slide and longitudinal power feed for turning both journals at once.

Dimensions and interesting data concerning the machine are given in the following table.

Swing	7 feet 7 inches
Diameter of face plates	7 feet 6 inches
Maximum distance between face plates	9 feet
Maximum distance between centers	7 feet 6 inches
Face plate speeds	20
Maximum speed for tires, revolutions per minute	2.68
Minimum speed for tires, revolutions per minute	0.227
Maximum speed for journal, revolutions per minute	54
Minimum speed for journal, revolutions per minute	4.53
Maximum feed	½ inch
Minimum feed	0.025 inch
Main spindle, left head, diameter	13 inches
Main spindle, right head, diameter	11 inches
Internal spindle, diameter	7 inches
Main driving shaft, diameter	6 inches
Cone for belt drive, large step, diameter	36 inches
Cone for belt drive, small step, diameter	18 inches
Belt, width	7 inches
Motor	30 horse-power
Floor space	20 feet 6 inches x 2 feet 3 inches
Weight	90,000 pounds

The lathe may be equipped with quartering attachments for boring the crank pin holes of the driving wheels when assembled on axles. The attachments weigh 2800 pounds and have spindles 2 11-16 inches in diameter with a travel of 16 inches. The quartering attachment on the left head is driven from the motor which drives the machine. On the right head it is driven by the mechanism provided for traversing the head on the bed. Both quartering attachment spindles have ten changes of speed, varying from 6.9 to 76 revolutions per minute, which give a wide range for all diameters of crank pin holes. The tool rests used when turning the journals of axles add 1500 pounds to the weight of the machine.

The Production of Natural Gas in 1904.

WASHINGTON, D. C., October 24, 1905.—The wasteful methods employed in the utilization of natural gas, which are largely responsible for the rapidly decreasing pressure in some of the most important fields, have resulted in a decrease of 390 in the manufacturing establishments supplied with this fuel in 1904, as compared with 1903, according to the annual report of the United States Geological Survey, compiled by F. H. Oliphant. In this decrease are included eight steel works and iron mills and 111 glass works. The attention of manufacturers is sharply drawn by the report to the almost complete exhaustion of many of the original fields in Pennsylvania, Ohio and Indiana, which bears witness to the fact that the contents of these reservoirs are limited, and that the abundance of gas at present in some fields gives no warrant for its extravagant use and wanton waste.

An Increased Output.

Although diminishing pressure is reported from many fields, the total production in 1904 was greater than that of any previous year, and was valued at $38,496,760, an increase over 1903 of $2,688,900. Four States, Pennsylvania, West Virginia, Indiana, and Ohio, produced 93.3 per cent. of the entire value of natural gas produced in the United States in 1904. Pennsylvania alone produced 47 per cent. of the entire value. The approximate quantity of natural gas produced in 1904, at a pressure of 4 ounces to the square inch, was 256,645,000,000 cubic feet, the equivalent of 6,159,480 tons of 2000 pounds. If the density remained the same throughout it would fill a pipe that would encircle the globe at the equator whose diameter should be slightly greater than 50 feet.

There was much active work in 1904 in the new fields of central Ohio and southeastern Kansas. In the latter a number of remarkably large wells were developed. A large amount was expended in drilling wells, extending many pipe lines and piping cities and villages in these States. In West Virginia a large number of new wells of large capacity were drilled and connected to the main lines. The United States produced 99 per cent. of the entire known world's production of natural gas.

At the close of 1904 there were 156,456,370 feet, or 29,632 miles, of mains for the transportation of natural gas in the United States, which varied from 2 to 35 inches in diameter. The greater portion of the pipe in use is 8 and 10 inches in diameter. The line pressure on the smaller pipe up to 10 inches runs as high as 400 pounds; for 20 inches diameter the pressure is usually less than 300 pounds to the square inch. Originally the gas pressure in the wells was sufficient to transport large quantities in ordinary sized pipes to points of consumption many miles distant. In many instances during recent years the gradual falling off of the natural pressure has made it necessary to install powerful pumping or compressing machinery.

In recent years there has developed a general extension of many of the large lines supplying central western Pennsylvania and northeastern Ohio into the deep and prolific fields of southwestern Pennsylvania and western West Virginia, which are now operated in a most economical way, enforced by the dearly learned lessons of the reckless exhaustion of the original fields of Pennsylvania, Ohio and Indiana. Much larger lines have been recently constructed, and the increase in diameter has added largely to their capacity and has increased the quantity of gas delivered at points of consumption. It is unfortunate that there is still a large quantity of natural gas wasted in southwestern Pennsylvania and West Virginia, where many of the upper gas producing strata are pierced when drilling for petroleum stored in the underlying sands.

Industrial Use of Gas.

In 1904 the manufacturing establishments employing this fuel were distributed according to the following table:

State.	Iron mills.	Steel works.	Glass works.	Other establishments.
Pennsylvania	35	65	..	2,740
Ohio	3	6	89	1,112
Indiana	8	4	15	297
West Virginia	7	2	81	964
New York	1	..	32	444
Kansas	6	4	6	274
Kentucky	1	1	14	55
Other States	..	..	..	67
Totals	61	82	237	5,953

There were 712,577 domestic consumers supplied in 1904, an increase of 85,530 over 1903. This increase came chiefly from Ohio, Pennsylvania, New York and West Virginia. Indiana showed a decrease. It is estimated that not less than 4,600,000 individuals were supplied with light and fuel, and not less than 5,000,000 individuals received benefit from its use as an illuminant.

Other Fuel Displaced by Gas.

It is estimated that the natural gas used in 1904, which was valued at $38,496,760, displaced coal, wood and other fuels valued in the aggregate at $43,413,240, or $4,916,480 more than was paid for the natural gas. The general average price of natural gas to consumers is very close to 16 cents per 1000 cubic feet, and the pressure 4 ounces above atmospheric. W. L. C.

Activity in the Scotch Steel Trade.

GLASGOW, October 13, 1905.—Within a fortnight steel plate and angle prices have been advanced here another 10 shillings per ton. That means £1 per ton within a month, following upon previous small advances of 2 shillings 6 pence to 5 shillings per ton. Such a movement in our market is so unusual as to be entitled to be called a boom. The advance is the result partly of an advance in hematite or Bessemer pig iron and partly of the increasing demand for finished product. The rise in the price of steel making pig iron is due partly to the large home consumption, but also largely to the foreign, including American, demand. Last month, for instance, our exports of pig iron were 91,318 tons, as against 61,678 tons in the corresponding month. The shipments to the United States last month were 15,113 tons, as against 4268 tons, and the greater portion of the increase was in steel making iron. A larger quantity of this class of iron has been purchased on American account, both in the Middlesbrough district and in Cumberland. It is evident that smelters of this iron are very largely sold, more largely than the home consumption would account for, by their eagerness to secure hematite ore. There have been very large sales of Bilbao (Spanish) hematite ore within the last few weeks at considerable advances on former figures. In Glasgow the price of Spanish ore may be called a shilling per ton dearer, of which one-half may be ascribed to the higher freights now exacted by the ore steamers in the Bilbao trade. Of West Coast or Cumberland hematite iron a good deal is believed to have been bought for shipment to the United States, and West Coast warrants are 70 shillings 6 pence, while East Coast or Middlesbrough hematite is cheaper, at 68 shillings.

Large Make of Cleveland Iron.

While the output of hematite iron has been increased by the Scotch furnaces the local consumption of it has also increased. Nearly all our furnaces are either on hematite or on special quality brands. This is why there is only some 16,000 tons of Scotch G. M. B. in store and why nobody nowadays pays any attention to Scotch warrants. It is different, however, with Cleveland foundry iron, which is now being made in large quantities in spite of the great quantity now in store. Perhaps one might truthfully say that it is being made in large quantities because of the large quantity in stock. This may seem a paradox, but the fact is that the current price for Cleveland warrants leaves a very large profit on the cost of smelting ordinary Cleveland ore, a better profit than by making hematite iron from imported ore.

Therefore Cleveland smelters go on making No. 3 foundry iron and sending it into store, where there are now 557,000 tons accumulated, or nearly 120,000 tons more than at the time when the Cleveland corner was closed in May. For all the Cleveland iron converted into warrants there are eager buyers, not merely among speculators but chiefly among steel and iron manufacturers, shipbuilders and other industrial consumers. They are buying Cleveland warrants to hold as cover against the rise in steel making iron and in finished iron and steel generally. And thus we have the remarkable fact that by the steady buying of legitimate purchasers the price of Cleveland warrants has been brought up close to the figure at which the bull corner in May forced the short sellers to settle. That was 55 shillings, from which the price fell to 45 shillings. But this week it has reached 53 shillings 6 pence and looks as if it were still on the up grade. Nor is this surprising with Cumberland hematite at 70 shillings 6 pence in store and with Scotch hematite at 72 shillings delivered. In short the Cleveland warrant stock has become a sort of reserve fund for which consumers are now truly grateful. By and by the buyers of Cleveland warrants hope there will be such a demand for foundry iron as will enable them to recoup what they may have to lose on the rise in hematite. How long it may take to absorb the Cleveland stock of foundry iron for consumption or whether it ever will be consumed are questions one would not care to answer just now. The key to the problem seems to lie in the extent of the supply of hematite ore.

General Advances in Finished Material.

By the latest advance Scotch steel plates are now £6 17s. 6d.; marine boiler plates, £7 7s. 6d.; angles, £6 10s., and bars, £7 10s., all per ton and less 5 per cent. In the north of England steel ship plates have been raised to £6 15s. and angles to £6 7s. 6d. per ton, less 2½ per cent. Merchant sheets have been raised here by 7 shillings 6 pence per ton and nail sheets by 15 shillings per ton this week. For every class of finished material there is a strong demand and steel makers are so full of work that they have to decline much new business. They have good contracts for shipbuilding material, though shipbuilders must have covered themselves pretty well before the advances were made. In the month of September the new ship contracts booked by Scotch shipbuilders aggregated over 100,000 tons and no doubt the closing of the steel contracts led the steel makers to put up their prices for further contracts. It is not likely that shipowners will order new ships now on a basis of £6 17s. 6d. per ton for plates, a price £1 12s. 6d. per ton above the basis of contracts a year or two ago. But it is not on shipbuilding material alone that our steel makers are busy; all classes of material are in demand. B. T.

The National Founders' Association.

Announcement is made of the general programme decided upon for the ninth annual convention of the National Founders' Association to be held at Hotel Astor, New York, on November 15 and 16, 1905. It is stated that the past year has demonstrated by the large growth in membership, which establishes a record for additions to the association, the wisdom of the stand taken at the Cincinnati convention last year in breaking off conference relations with the Iron Molders' Union under the New York agreement. Indications point to a large attendance at the coming convention in view of the important questions that are to be considered and the special reports to be made. The outline of the procedure to be followed is indicated in the following programme:

Roll call and reading of minutes.
Appointment of Resolutions Committee and Press Committee.
Reports of president, treasurer, secretary and commissioner.
Education of Apprentices.—How best results may be obtained. Report of Committee on Training School. Best methods to be adopted to bring to justice law breakers, sluggers, murderers and intimidators. Desirability of protecting members of the association against the organization of foundry helpers, chippers, cleaners and cupola tenders.
Machine Operators.—How to obtain the best results with molding machines.
Field Force.—To what extent shall this branch of work be continued or enlarged?
Co-operation with Kindred Associations.—Report of committee and discussion.
Report of Special Finance Committee.
Miscellaneous business.
Election of officers.

The report of the Committee on Co-operation with Kindred Organizations is awaited as one of the most interesting features of the coming convention, the possibilities of union with other associations having had serious consideration in the past year. The education of apprentices is also a topic that will occupy considerable time. The annual subscription banquet will be held on Wednesday evening, October 15, at the Hotel Astor. It is announced that speakers of national reputation will make addresses on this occasion.

British advices are that the Vickers Maxim Shipbuilding Company has concluded negotiations for the sale of a new 20,000-ton battle ship to the Russian Government. The battle ship was laid down by the builders in the hope that Russia or some other foreign power would buy it before completion. A second battle ship is to be begun on the same lines. Further orders for vessels have been placed recently, Burrell & Co., of Glasgow, booking 10 of 7000 tons capacity in the second week of October. The activity at shipyards is a continued surprise. There are 24 ships building at Belfast, 92 at Glasgow, 63 at Greenock, 80 at Newcastle and 51 at Sunderland. The majority are for colonial and foreign firms.

The Excelsior Reversing Gasoline Engine.

The two-cycle gasoline engines shown in the accompanying illustrations have a number of original features, the most important of which, especially when considered in its adaptation to marine work, being the mechanism for reversing without the use of intermediate gearing. The propeller shaft is not broken, but is a single piece, the reverse being accomplished in the same simple manner as in a steam engine, by throwing over a lever, causing the crank shaft to revolve in the opposite direction. Another feature is the use of a valve in the by-pass, automatically opened and closed, to prevent the possibility of back firing in the crank case, and adjustable to regulate the power independent of the timing mechanism. Thus there are two entirely independent controls of the engine,—one of the power by regulating the amount of gas admitted to the combustion chamber, the other of the time of explosion. Other features of design and mechanism are worthy of note. The engine is manufactured by the Julian D'Este Company, 24 Canal street, Boston, Mass., in two types, the horizontal opposed and the vertical. The former is shown in Figs. 1 and 4 and the vertical type in Figs. 2 and 5.

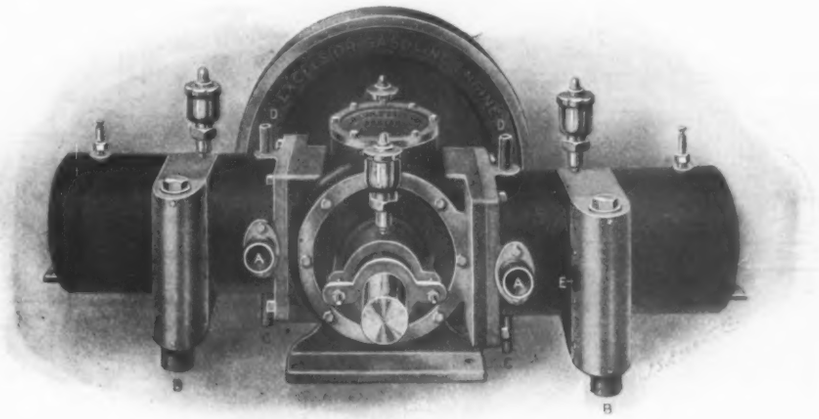


Fig. 1.—The Horizontal Opposed Type of the Excelsior Gasoline Engine.

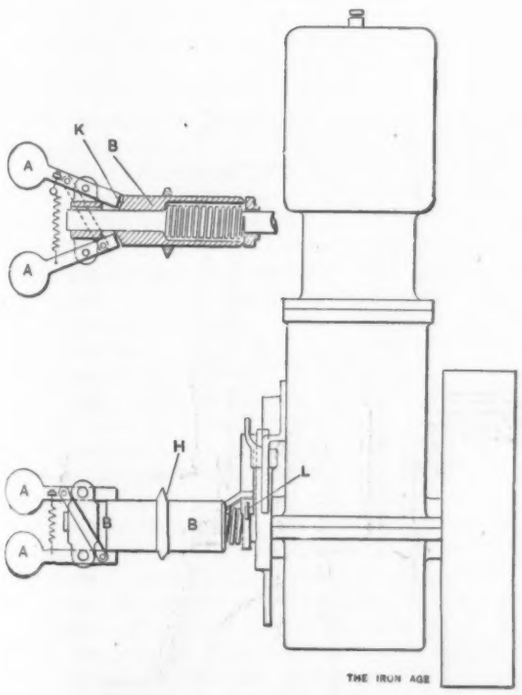


Fig. 2.—Detail of the Governor on a Vertical Engine.

A general idea of the reversing mechanism is given by Figs. 2 and 3. When the engine is running ahead the governor balls A A tend to fly out, but are prevented from doing so by the sleeve B, which restrains the governor arms. When the reverse lever, Fig. 3, is thrown over to the position E a catch acts against the flange H, Fig. 2, on the sleeve and pulls it back into the position shown in the upper detail, Fig. 2. The sleeve being withdrawn from between the governor arms permits centrifugal force to throw the balls outward, which brings the ends of the arms against the shoulder K on the sleeve, holding the latter in position. At the same time the sleeve acts upon the interrupter roll L, Figs. 2 and 3, holding it so that it cannot come in contact with the cam face J, and sparking ceases, since it occurs only while the roll is in contact with this cam face. The purpose is to cause the engine to lose its momentum by stopping the explosions, this being necessary before reversing begins. The governor balls are connected by an adjustable spring which brings them together before the momentum is entirely overcome, permitting the sleeve to be forced back by its spring between the governor arms, locking the governor and releasing the interrupter so that it may resume sparking. The action of the reverse lever has caused the interrupter to change its position, as shown in Fig. 3, so that the spark occurs before the center is reached, consequently when sparking is resumed the engine must run in the reverse direction. The momentum has been reduced to such a degree that the force of one explosion will cause the engine to revolve in the reverse direction. It has been found in practice that the time required for changing from full speed ahead to the reverse is about five seconds, and is much shorter when the reverse is from slow speed ahead.

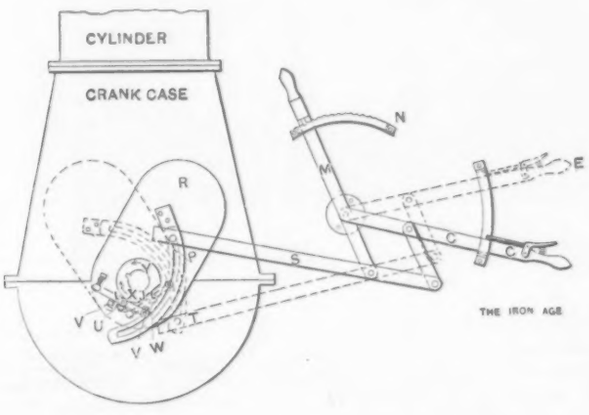


Fig. 3.—Detail of the Reversing Mechanism.

The action of the reverse lever may be understood from Fig. 3. The function of lever M is to control the speed of the engine by timing the spark. When it is in the position shown the engine is running at slow speed, when in position N it is running at full speed. The lever C is for reversing the engine. At the position shown by the heavy lines the engine is running ahead. To reverse, the lever is put in position E, shown by dotted lines. If, when it is desired to reverse, the engine is going at full speed ahead, the movement of the reversing lever automatically throws the speed lever to its slow position.

The timing or interrupting cam is shown at J, Fig. 3; and P is a groove in the commutator part R. When the engine is started ahead the spark occurs after the crank has passed its center. As the engine speeds up the interrupter roller L is advanced to give an earlier spark. This is accomplished through the rod S, which shifts the commutator part R until it is in the position shown by dotted lines, but the rod remains at the upper end of the slot. When the reversing rod is thrown over it automatically throws the speed lever to its slow position, which means that the commutator part and the interrupter are returned to their original positions, and then the rod S assumes the position T, which throws the commutator part back again into its dotted line position and at the same time brings into operation the regulator device for reducing momentum and stopping sparking. The new position of the interrupter changes the spark so that it occurs before the center is reached in the forward direction. Thus when the engine resumes sparking the re-

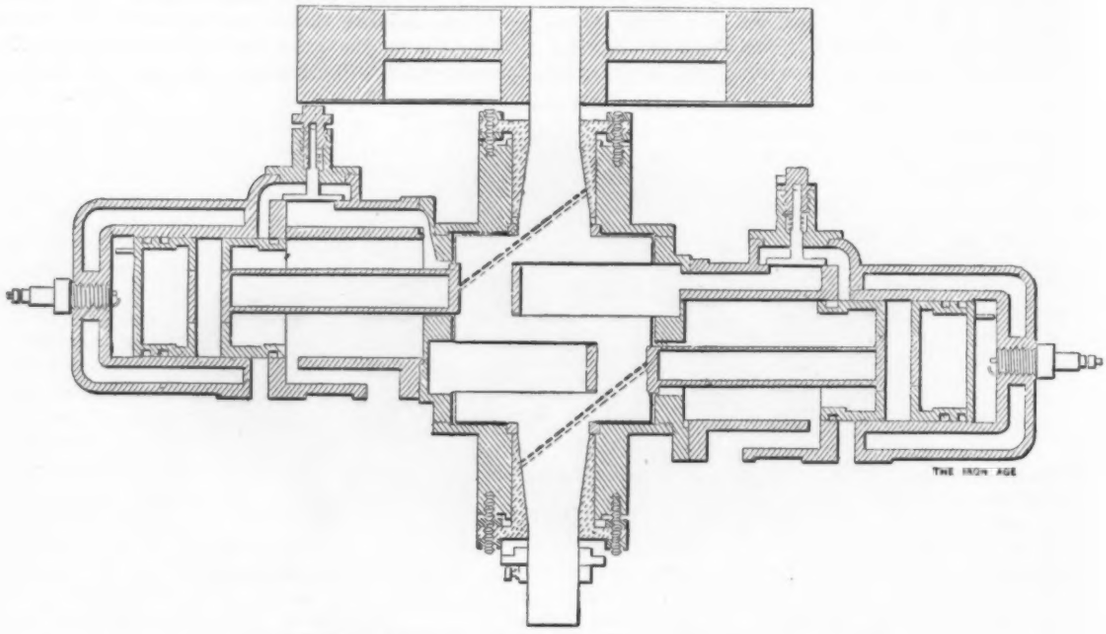


Fig. 4.—Horizontal Section of the Two-Cylinder Opposed Excelsior Engine.

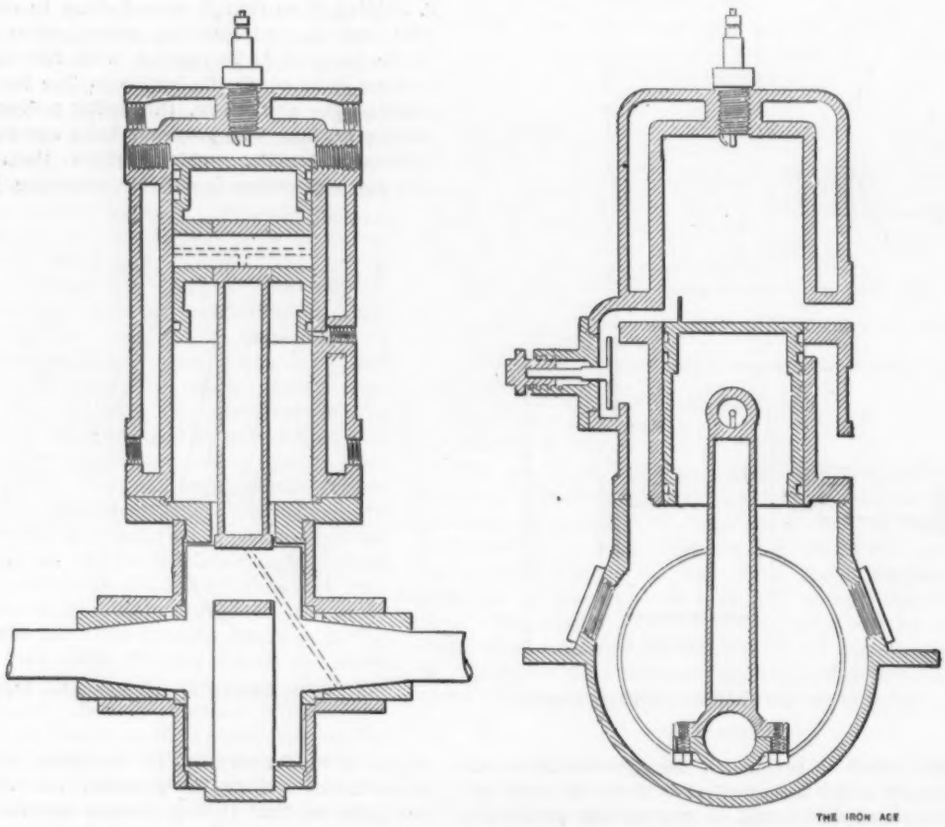


Fig. 5.—Two Vertical Sections of the Vertical Excelsior Engine.

verse motion must follow. The reverse may be operated at the full speed of the engine. In returning to the forward direction the opposite of the foregoing operation takes place.

To explain more fully the effect of changing the position of the commutator part R, when it is in its original position, as indicated by the unbroken lines, the interrupter roller L is in position shown at U, and when in its dotted line position the interrupted roller is at W. As the interrupter cam J is keyed to the shaft, the roller in its two positions causes sparking at two different points in the stroke. When the engine is going ahead, in the direction of the arrow X, the U position of the roller corresponds to that for slow speed, and the position W that for full speed. But when the engine is reversed, revolving in the direction of the arrow Y, the conditions of speed for the positions U and W of the roller are reversed. The spring which holds the roller L against the cam face is shown in its two positions by V and V.

While in general the Excelsior engine is not unlike the standard type of two-cycle gasoline motor, it has other features of its own in addition to the reversing mechanism. An effort has been made to produce a maximum compression by leaving as little space as possible in the crank case. With this end in view it has been reduced to the smallest possible size, and has been filled up as much as possible. The common flat crank has been replaced by disks, and the connecting rod is hollow to make it large for its weight. The piston performs the function of both outlet and inlet valves, combining simplicity with efficiency. The exhaust valves are very long and narrow, affording ample egress for the gases of combustion after they have performed their work in driving the piston. The general construction of both the horizontal and vertical types of the engine is well brought out in Figs. 4 and 5.

The bearings are conical and easily adjusted for wear by two check nuts. If a hot box occurs the bearings may be loosened while the engine is running and new adjustment made without loss of time. The crank pin and bearings are lubricated from a grease cup just above a port in the crank shaft bearing. The grease is centralized in the bearing because the degree of compression is equal to the degree of vacuum, so that the operation is the same as it would be under normal atmospheric conditions. The crank pin is lubricated through a hole passing through the crank from an annular groove around the crank shaft just below the grease cup, centrifugal force driving the lubricant to its work. With this arrangement the crank case is kept free of oil and grease, which otherwise might be taken into the combustion chamber with the fuel mixture, causing odor. All joints are ground and packing is done away with. The cylinder head is one piece with the cylinder to prevent any possibility of a leak between the water jacket and the combustion chamber.

The throttle valve in the by-pass serves the double purpose of preventing back fire in the crank case, which has been a serious fault in two-cycle engines, and also in adjusting the amount of fuel supplied to the combustion chamber. The valve is held on its seat by its spring until the pressure from the crank case exceeds that of the combustion chamber. There is little likelihood of back firing with the pressure of the combustion chamber less than that of the crank case, and if such a tendency should develop, then the moment back firing began the valve would have to close. The valve spring is adjustable by means of a steep threaded plug operated by a lever. By this device the operator is enabled to throttle his engine by increasing the spring tension, so that the valve will open later in the stroke, admitting a correspondingly decreased supply of fuel without changing its quality.

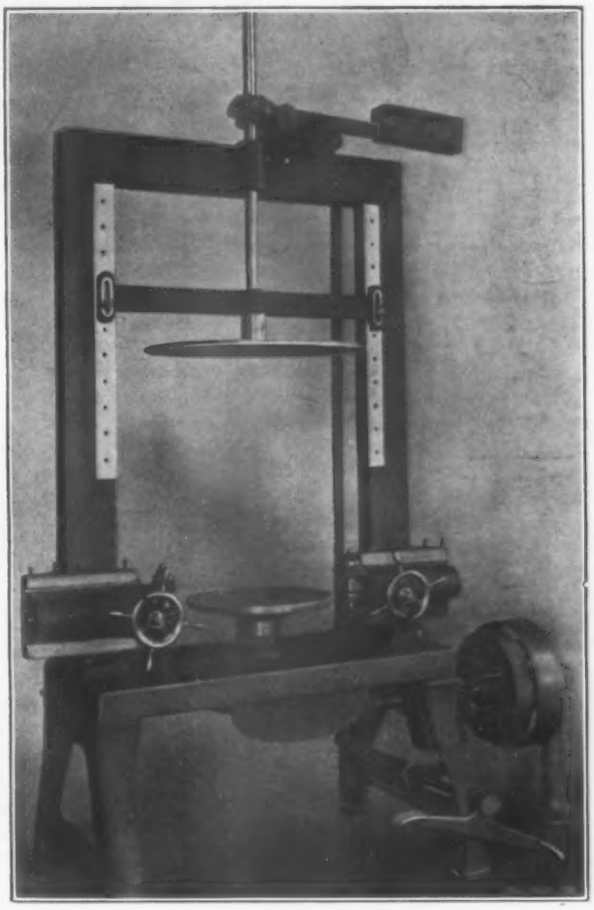
This engine was designed by W. H. Broadhead and H. L. Latimer of Charlestown, Mass.

An example of economical elevator service is cited in the October Bulletin of the New York Edison Company. It refers to the electric elevators in the Times Building, one of the two tallest buildings in New York City. The elevators run at high speed, making an average daily travel of nearly 90 miles, which is obtained with an average consumption of 3.82 kw.-hours per car mile.

Niagara Power Double Seamer No. 9.

The machine shown in the accompanying illustration was put on the market by the Niagara Machine & Tool Works, Buffalo, N. Y. It is intended for double seaming the tops and bottoms of drums, such as are used for caustic soda and other chemicals, and for similar work. The drum body is made in the usual manner, with both ends flanged out, and the tops and bottoms are pressed to the proper shape by dies in a press. The drum can be made of iron up to No. 20 gauge.

The seamer accommodates work in diameter from 19 inches to 32 inches, extra seamer chucks being required for each size. To special order it can be made for work of smaller diameter. It will accommodate work from 6 inches to 44 inches high. The machine is driven by means of a friction clutch controlled by a double treadle. When the operator depresses one treadle the work is clamped between the lower chuck and the upper disk. At the same time the clutch is engaged and the work revolves. By depressing the other treadle the motion is stopped and the clamping disk raised. The lower chuck is driven by bevel gears arranged underneath the bed. The seamer rolls are carried on slides mounted on the uprights and they are brought in contact with the work by means of hand wheels. The seamer rolls have vertical adjustment. One of them curls the seam and the other flattens it.



The Niagara No. 9 Power Driven Double Seamer.

The weight of the machine complete is about 2[illegible] pounds. It is one of a series of double seamers built by this company for large and small work, on round or other shapes.

The Locke Automatic Engine Stop.

A device for closing the main steam supply to an engine if the safe limit of speed is exceeded or an accident occurs in any part of the plant is made by the Locke Regulator Company, Salem, Mass. Acting as a safeguard against an excess of speed it operates automatically and so prevents the danger of bursting the fly wheel, and if something happens to the machinery anywhere in the works, making it desirable to stop the engine, it may be operated at will by the pressing of any one of a number of electric buttons placed at convenient locations. The speed limiting function is controlled by a Pickering style of governor which is belted to the engine shaft. This governor is set to make an electric contact when a predetermined speed has been reached, the limit being a few revolutions greater than the normal engine speed.

Where the engine uses a supply valve 3½ inches in size or smaller the stop is incorporated in the valve, as shown in Fig. 1. For larger sizes the stop is a part of an auxiliary valve through which the main shut-off valve is controlled. In Fig. 2 are shown the main valve and the auxiliary valve, the former being drawn to half the scale of the latter. The main valve is of the double poppet type. The two poppets are mounted on the same stem with a piston which fits loosely in a cylinder. The upper poppet is of slightly greater area than the lower one, so that steam entering at the inlet at the left side will open the valve if the outlet from the cylinder containing the piston is closed. With this condition the piston is balanced by the leaking of steam past it. If steam pressure is released from the upper face of the piston the pressure of the steam below it will close the valve, as the steam cannot leak by the piston fast enough to equalize the pressure on both sides.

The auxiliary valve or electric relief valve is connected with the outlet from the chamber above the piston of the main valve and there is preferably a globe valve between. Fig. 3 shows a section of the relief valve taken perpendicular to the plane of the elevation in Fig. 2. Steam entering the inlet of the valve passes above the piston A and fills the space B, keeping the valve C closed. Whenever the valve is electrically tripped the spring D

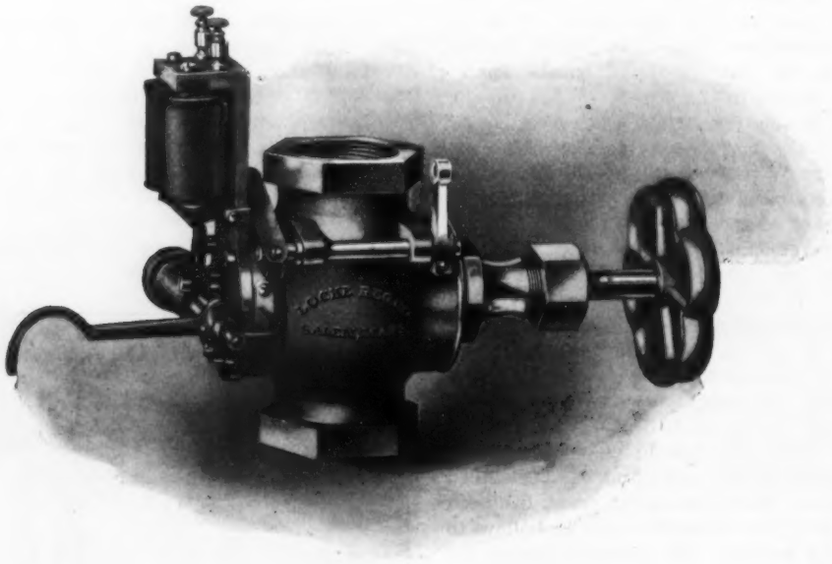


Fig. 1—The Locke Combined Throttle and Automatic Engine Stop.

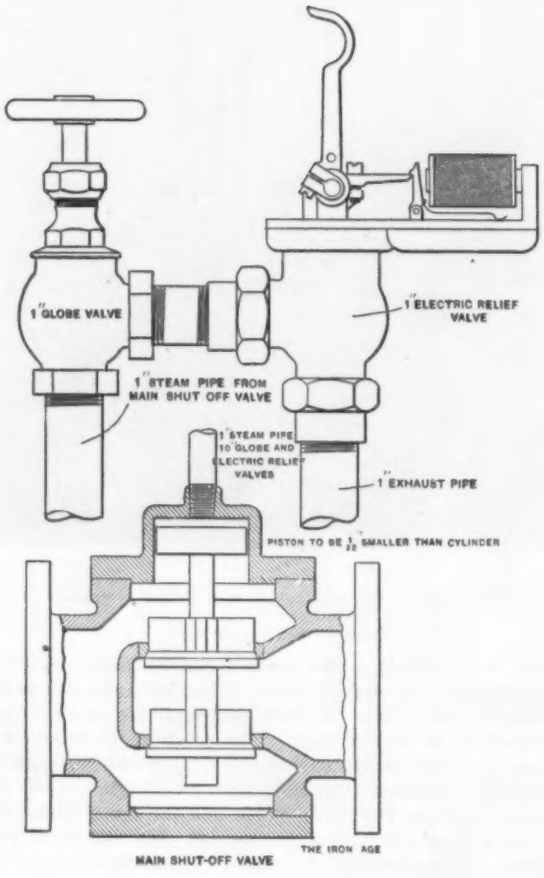

1" GLOBE VALVE
1" ELECTRIC RELIEF VALVE
1" STEAM PIPE FROM MAIN SHUT OFF VALVE
1" STEAM PIPE TO GLOBE AND ELECTRIC RELIEF VALVES
1" EXHAUST PIPE
PISTON TO BE 1/32 SMALLER THAN CYLINDER
THE IRON AGE
MAIN SHUT-OFF VALVE

Fig. 2.—The Main Valve, with Separate Auxiliary Controlling Valve.

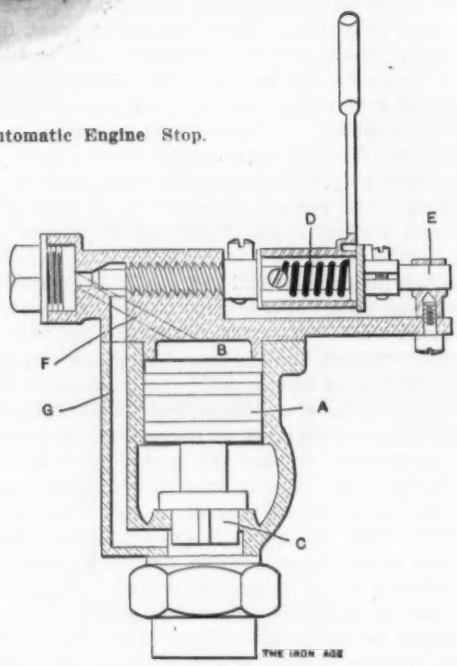


Fig. 3.—Section of the Auxiliary Valve.

uncoils and rotates the valve spindle E one-quarter of a turn. This removes the small valve from its seat 1-16 inch and exhausts steam from the space B through passages F and G to the outlet end of the valve C. As piston A is larger than the poppet C the pressure of the steam in the space between the two will open the valve. This in turn will exhaust steam from the top side of the piston of the main shut-off valve and cause it to close.

The globe valve between the relief valve and the main valve provides a means of keeping the outlet from the operating cylinder on the main valve closed if the relief valve is out of order or if the electric trip is being tested and avoids interrupting the operation of the engine.

Fig. 4 shows the governor used as the speed limit. It is driven by belt from the shaft of the engine and is connected in the wiring circuit as any ordinary circuit closer would be. It is designed to run in either direction and has a ball bearing shaft to minimize friction and increase its sensitiveness, so that a delicate balancing is possible of the centrifugal force and the opposing resistance of the springs. As the balls are thrown out by the increased speed of the engine a small spindle within the hollow shaft is made to travel laterally, which causes it to come in contact with a strap key and close the circuit. The governor has an adjustment of about 50 revolutions.

Fig. 4.—The Locke Automatic Speed Limit Governor.

Recent Customs Decisions.

Cast Iron Grinding Disks.

The Board of General Appraisers on October 20 handed down a decision denying claims made by Thomas Prosser & Son, New York, regarding the classification of cast iron grinding disks and other articles which have been further advanced in manufacture subsequently to the casting process. The merchandise, which had been classified at the rate of 45 per cent., was claimed to be dutiable as castings.

Ferro Alloys.

The General Board has decided favorably to the importers, M. Morris and F. H. Shallus of Baltimore, their contention regarding the classification applicable to ferrochrome. The collector assessed the merchandise as "metals, unwrought," with duty at the rate of 20 per cent. ad valorem. On the other hand, the importers set up the claim that the importations were dutiable at $4 per ton, by similitude to ferromanganese, provided for in paragraph 122. The decision says, among other things: "The question of the dutiable classification of the materials enumerated above has been the subject of protracted litigation between the Government and the importers, and ended finally in favor of the latter by the decision of the Circuit Court of Appeals in the case of the United States against the Roessler & Hasslacher Chemical Company. This was an appeal by the Government from an affirmance of the board's decision, dated July 31, 1903, which, following the General Appraisers' ruling, had sustained the importer's claim that the merchandise, ferrochrome, was dutiable properly at the same rate as ferromanganese by virtue of the similitude clause, section 7 of the tariff." General Appraiser Fischer states in his decision that as the Treasury Department has acquiesced in the finding of the court the classification found by the last named tribunal will be followed by the board hereafter.

The board has rendered a decision reversing the collector at Philadelphia in assessing duty at the rate of 20 per cent. on ferrosilicon on the ground that it is a metal. General Appraiser Fischer says in his decision for the board that the article is denominatively provided for at the rate of $4 per ton, the classification claimed by the importers.

Miniature Turbines.

The Allis-Chalmers Company has filed an appeal with the Board of United States General Appraisers in which objection is made to the action of the collector of customs at New York in assessing a heavy duty on miniature patterns of turbines for steamships. The importers maintain that the models are properly free of duty under the provision in the tariff for "patterns for machinery." Collector Stranahan's view is that the patterns are "manufactures of metal," and therefore should stand assessment. Testimony is being laid before the customs tribunal, and a decision will probably be promulgated next month.

Copper Cylinders Produced by Electrolysis

have become the subject of customs controversy. The Board of Appraisers, while overruling a protest filed by Welles & Locke, New York, finds that the collector erred in his assessment. Duty was exacted at the rate of 2½ cents per pound under the tariff provision for copper pipes. It was alleged in the protest that the merchandise should be admitted without duty as copper not manufactured. From the testimony placed before the board it was apparent that the articles as imported represented the result of the first stage of the manufacturing process used in the fabrication of copper pipes. It was also demonstrated to the satisfaction of the tribunal that the articles are not the copper pipes or tubes of commerce. The board holds that the merchandise should have been assessed under paragraph 193 of the tariff act for "articles not specially provided for." As that claim was not made by the importers the collector's classification, although erroneous, must stand.

Carding Machines.

The Board of United States General Appraisers has rendered a decision of considerable interest to importers and users of carding and other machines of a compound character. It appears that the H. G. McKerrow Company, Limited, imported at Boston 127 cases in which were contained, separately packed, 14 carding machines complete with the clothing on. The collector of customs assessed duty on the contents of all of the cases except five at the rate of 45 per cent. under the provision in the Dingley tariff law for manufactures of metal. On the five containing the card clothing for the machines the collector imposed a duty of 45 cents per square foot. When the protest came before the Board of Appraisers for hearing the importers set up the claim that the card clothing is a part of the machines and should pay duty at the same rate as the other parts—namely, 45 per cent. General Appraiser Fischer in his decision for the board says: "We are of opinion on the facts and the law that the claim of the importers is well founded. The testimony shows that a carding machine without card clothing is useless, and that this particular importation included only enough card clothing to clothe the 14 machines imported. It is a matter of common knowledge that bulky machinery is thus packed and shipped. In this respect the card clothing occupied no different status from the cylinders, arms, pinions, wheels and other parts to which no question has been raised. Our conclusion is that the machines and card clothing belonging to them should be treated as entireties, and dutiable as claimed."

Manufacturing Methods.

BY C. L. GOODRICH.

The writer, who has been foreman of one of the departments in one of the largest Eastern machine tool building shops for several years, has found it of great value to prepare, in advance of the machine work, work tickets or detail contract slips to assist in keeping the workmen constantly employed on the class of work in which they are most efficient. A detailed description of the system adopted may prove of interest to foremen who have a body of 75 or more men on manufacturing work, some of them good, all around mechanics, others specialists on the lathe, planer, boring mill or at the bench.

Among the essential points for a foreman to always bear in mind are the cost of the work, its quality and the time required for its completion. In order to reduce cost and to put work through rapidly it has been found absolutely necessary to determine first what the exact method of manufacture shall be and to this end utilize operation lists as shown in Fig. 1. These when properly filled out constitute a record from which advance work tickets or contract slips, Fig. 2, already alluded to, may be prepared. These tickets are in duplicate—*i. e.*, the right half on its reverse side has the same form that is printed on the left half, and the reverse side of the left half contains the form on the right half. Carbon paper is used to make both parts out simultaneously. The two parts bear the same number for the purpose stated later, and the leaves are numbered consecutively and for convenience are in pad form.

For each separate operation on a lot of machines which are being built one of these tickets is filled out in duplicate, and as a complete set for a given machine is being prepared they are detached in duplicate—*i. e.*, original and carbon part—from the pad. These double tickets are then grouped into classes, such as lathe work, planer work, milling, filing and fitting, drilling and tapping, boring, &c., and are then filed in an open cabinet in pigeon holes marked to correspond with each class of work. The cabinet is of sufficient size so that all tickets for one order for a lot of machines may be filed in pigeon holes in the same horizontal line. The tickets for all other orders in process of manufacture are filed in the same manner, each separate order requiring a horizontal line of pigeon holes.

Fig. 3 illustrates the cabinet and the disposition of the tickets. A very important feature, and one upon which much of the success of the system depends, is that all tickets for a given class of work are filed in the same vertical line—that is, all lathe work tickets are filed in the tier of holes *b*, all planer work in the tier *c*, all milling in *d*, all filing and fitting in *e*, drilling and tapping in *f*, and boring in *g*. As a result of this method all work on each individual order is separated into classes, and in addition, what is fully as important, the foreman knows in total the amount of work ahead for each class.

When an operation is to be started the double ticket is taken from the pigeon hole in which it has been filed and one half is handed to the workman and the carbon duplicate half is then filed in the pigeon hole in the tier *h* in the same horizontal line as before. This pigeon hole is for all work (irrespective of class) in process on the particular order for machines represented by this horizontal line of holes. After the workman has completed the work specified on the ticket to the satisfaction of his gang boss the original ticket is returned to the foreman's clerk, who checks time and cost items and enters this memorandum on each half of the ticket, and sends one half to the shop time clerk, so that the man's profit, if any, may be entered on the pay roll book. This is presuming that the workman is employed under the premium system. The clerk files the other half of the ticket in hole *i* in the horizontal line of the order, which is for all finished work.

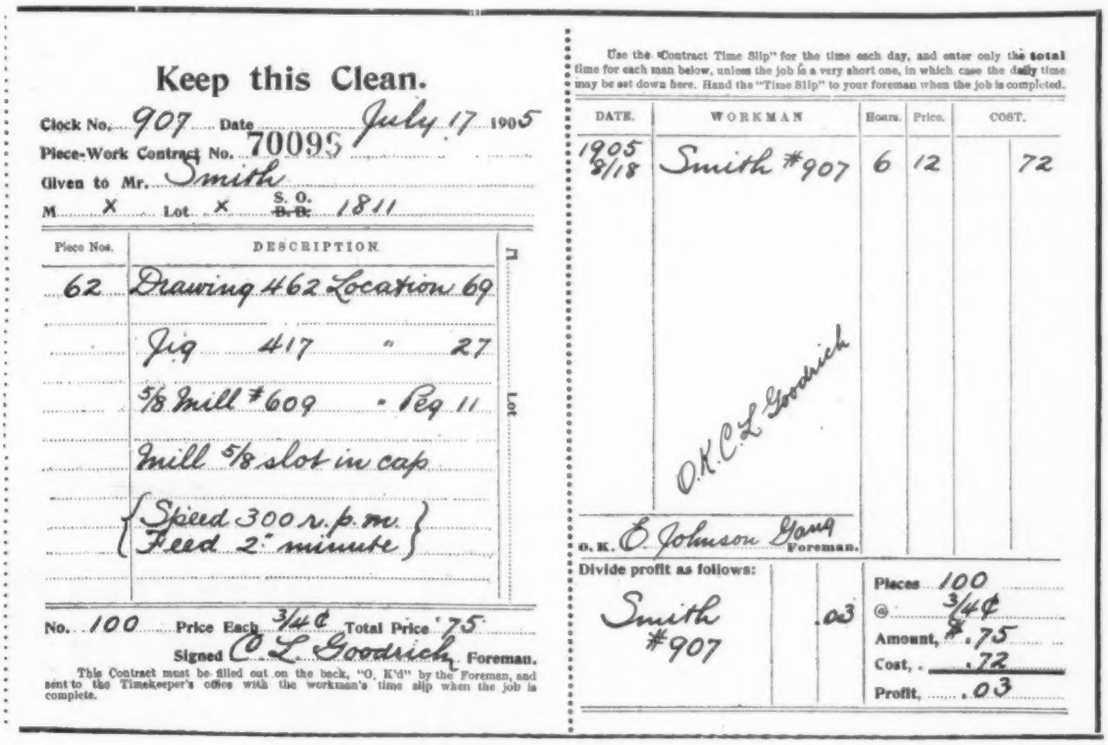
By glancing through the horizontal line of pigeon holes representing one order all the work not started in each class, all the work in process and all that is finished may be readily determined. By glancing vertically down the tiers of pigeon holes the exact situation as regards volume of work of each different class may be learned

No. 12 Front and Rear Tool Posts. M-1082 - 1 TO 2

Piece No.	Drawing No.	Oper'n No.	OPERATION.	TOOLS.	Tool No.
62	J1256		1: Body - Front		
		1	Remove sprue		
		2	Mill base	4" mill, 3" face, 1¼" hole, Reg. #159 — Fixture	101
		3	Mill top	" " " "	102
		4	Drill all vertical holes	Standard tool room drills Jig	117
		5	Counterbore for tool block	1" x 3/8" C Bore Pocket 17 Fixture	118
		6	Counterbore face of boss	1½" x 3/8" C Bore " 19 "	
		7	Drill two cross holes	Standard tool room drills Jig	121
		8	Plane tool block slot	Fixture	89
		9	Tap two holes	Standard tool room taps	
		10	File burrs and round all corners		
		11	Paint	Prime, fill 2 coats, sand paper and 3rd coat	
612	J1258		2: Tool Blocks		
		1	Drop forge and trim	Pair dies (Blacksmith Shop)	
		2	Drill, tap, turn & face one end	Standard screw machine tools Chuck jaws	62
		3	Turn and face other end	Arbor	111
		4	Mill sides	2-4" straddle mills ½" collar Reg. 160 "	114
		5	Turn anvil	Fixture	
		6	File burrs and round all corners		
		7	Carbonize & then harden anvil in open fire		
		8	Clean out thread and polish		

Fig. 1.—Specimen Operation List. Actual Size, 9¾ x 13⅜ Inches.

without delay. Sub-foremen have opportunity to study the work in hand and consult with the foreman. For example, one sub-foreman may find it necessary to rush some certain work and finds that it is necessary that men under another sub-foreman should come to his assistance. He studies out the status of the department as to work by means of the cabinet files, and having learned holes of the vertical boring column for new work upon which he may be started, and one would naturally look into the spaces which in a horizontal line covered the most urgent of orders. The cabinet method of filing advance work tickets the writer also finds assists him in determining what class of help he needs to increase and in hiring new help he always refers to the cabinet.



Keep this Clean.

Clock No. 907 Date July 17 1905
Piece-Work Contract No. 70095
Given to Mr. Smith
M X Lot X S. O. ~~B. B.~~ 1811

Piece Nos.	DESCRIPTION	Lot
62	Drawing 462 Location 69	
	Jig 417 " 27	
	5/8 Mill #609 " Reg 11	
	Mill 5/8 slot in cap	
	Speed 300 r.p.m. Feed 2" minute	

No. 100 Price Each 3/4¢ Total Price .75
Signed C. L. Goodrich Foreman.

This Contract must be filled out on the back, "O. K'd" by the Foreman, and sent to the Timekeeper's office with the workman's time slip when the job is complete.

Use the "Contract Time Slip" for the time each day, and enter only the **total** time for each man below, unless the job is a very short one, in which case the daily time may be set down here. Hand the "Time Slip" to your foreman when the job is completed.

DATE.	WORKMAN	Hours.	Price.	COST.
1905 8/18	Smith #907	6	12	72

O.K. C. L. Goodrich

O. K. E. Johnson Foreman.

Divide profit as follows:

Smith #907 .03

Pieces 100
@ 3/4¢
Amount, .75
Cost, .72
Profit, .03

Fig. 2.—Specimen Contract Slip. Alike on Both Sides. Actual Size, 5½ x 9 Inches.

this goes to the foreman with an intelligent idea of how the emergency may be bridged. The foreman consults the cabinet, learns where the men can be spared from some job which is not hurried or which is farther advanced in some classes of the work than in others, and without waste of time or delay a readjustment of men on orders is made. In the same general manner the exact cost to date of an order in process may be ascertained with little labor.

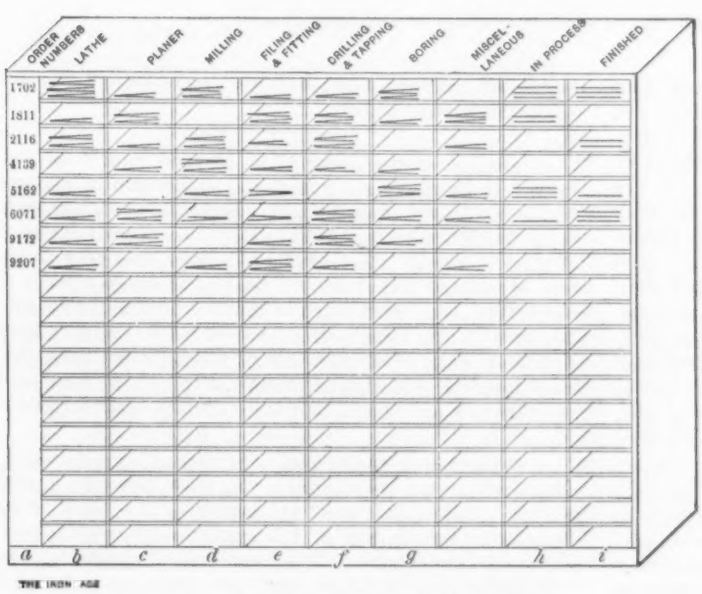


Fig. 3.—Cabinet for Filing Contract Slips.

Suppose that a workman who is about through with a job is particularly good on a certain class of work, say, on boring. It is merely necessary to look into the pigeon

Detailed information as to the tools and exact method to be used in performing each operation is given in the operation sheets, and when the advance work tickets are filled out this information, as well as the compartment location of tools and of the drawings of the work, is noted so as to minimize a loss of time which would otherwise be unavoidable. No quick decision as to what is best to start a workman on when ready for new work or how he should exactly perform his work can be as good as a decision reached by consulting a systematic layout previously carefully prepared with reference to other operations on the same piece of work. The advance work tickets have been found in actual practice to fully meet the requirements. The work of establishing this system is much less than that of any other to which the writer's attention has been called. After it has once been started there is no necessity of continually making memoranda, which is necessary when no system is employed. The transferring of tickets to compartments is the only labor which is in addition to usual practice. No foreman, in case he is handling a difficult class of machine tool building, can be as positive that he is as fully instructing a workman from his unaided memory as from an operation list and a system giving in detail and in exact sequence the method of finishing the work.

The system applies as well where no contract or premium or piece system is employed, the difference being only in the detail of the slips.

The Republic Iron & Steel Company will move its executive offices from Chicago to 111 Broadway, New York, the location of its Eastern sales agency.

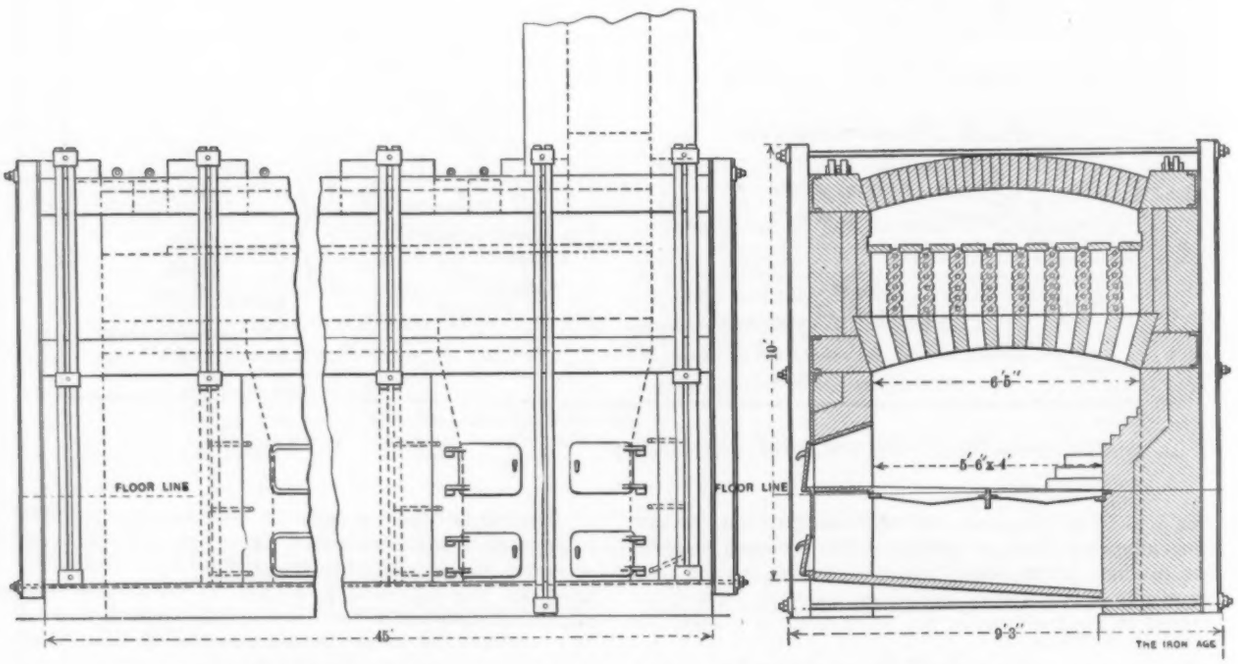
The Warwick Wire Annealing Furnace.

In the process of annealing wire it is desirable to maintain a constantly uniform temperature in the furnaces and to keep the wire from contact with the hot gases. A furnace in which these two conditions are possible has been invented by J. R. Warwick and is made by the Warwick Construction Company, Chicago, Ill. The accompanying drawings show sections of a furnace which were recently erected for the Indiana Steel & Wire Company, Muncie, Ind.

The furnace is a long structure having a number of firing chambers, usually four, as in the furnace illustrated, which is 145 feet long by 9 feet 3 inches wide by 10 feet 10 inches high. The side walls and the arch covering the top are built of refractory brick, capable of withstanding high temperatures. In one side wall are the doors leading to the fire boxes and ash pit of the heating chambers. The construction of the fire boxes is shown in the transverse section at the right in the illustration. They are covered by fire brick arches containing a number of openings into a flue above, which extends the length of the furnace. The lower half of the horizontal flue above the arch is separated from the half above it and is divided longitudinally by partition walls. These are formed of blocks of fire brick, through the center of which extend a number of holes running the length of the flue and out through the end walls of the structure. It is through these holes that the wire is passed, receiving heat from the incandescent bricks without coming in contact with the heating gases. The partition walls are corrugated to increase their heating surface. The openings between them, which communicate with the openings through the arches of the heating chambers, are covered on the top by lines of tiles, which separate them from the upper half of the horizontal flue, except at the left hand end. The gases are caused to pass through the lower flue to the opening at the end and pass back through the upper flue to a stack at the opposite end.

The side and end walls of the structure are reinforced by buck stays and to prevent them from yielding at points between there are longitudinal channel beams where the thrust is received from the arches over the heating chambers and the upper flue. The arches over the heating chambers are exposed to the most intense heat and require repairs from time to time. To facilitate the making of such repairs there are removable plates in the upper arch at frequent intervals covering openings through which access may be had to the lower arches by removing the tiles and partition walls directly over the arch of the chamber to be repaired. The cover plates are of iron protected on the under side by fire brick arches and have eye rings by which they may be lifted.

When the furnace is to be placed in operation fires are started in all of the heating chambers, and are maintained until the partition walls in the lower flue have reached the desired temperature. The wires to be annealed are then passed through the openings in the partition walls and end walls of the furnace and during their passage are annealed. After the partition walls have attained the desired temperature the fires are banked in one or more of the heating chambers, it being usually necessary to maintain a live fire in only two of the chambers to maintain the proper temperature. As the partition walls are composed of fire brick, which is not a good conductor of heat, any change in their temperature is comparatively slow and is consequently readily detected, so that it is easy to regulate the fires. As a result the temperature can be easily kept uniform and the best results in annealing thus obtained. The wires during the annealing are kept clean and are not subjected to great variation in temperature.



Partial Side Elevation and Cross Section of the Warwick Wire Annealing Furnace.

Statistics of the Association of Iron and Steel Producers in Germany show that the production of pig iron in August, 1905, was 968,323 metric tons, as compared with 942,905 tons in July, 1905, and 851,651 tons in August last year. The total production this year to the end of August was 7,009,816 tons, as compared with 6,697,391 tons in the first eight months of 1904 and 6,675,704 tons in the same period in 1903. The German Steel Syndicate shipped 434,167 tons of billets, sheet bars, railroad material and shapes in August, or 16,980 tons more than in July and 66,824 tons more than in August, 1904.

All September records were broken last month in the value of foreign merchandise imported into the United States. The total was $102,138,031. In only three months in the history of the country have the imports exceeded $100,000,000. The September imports in 1904 were only $84,124,975, so that the increase last month was more than $18,000,000.

The new plant of the Canada Car Company at St. Henri, near Montreal, Canada, is in operation, and a sample car has been finished. Next week the company will begin turning out cars. This is remarkable in view of the fact that ground was broken only a year ago, and in that time the plant has been erected and completely equipped.

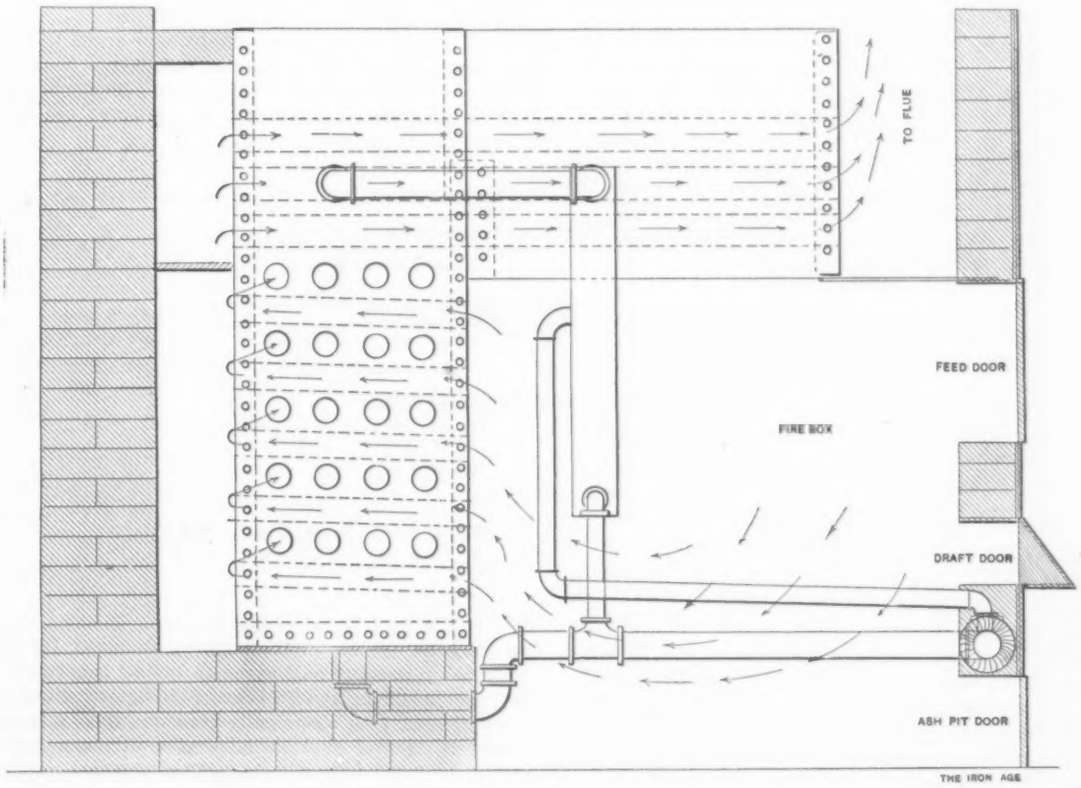
The New Wigert Boiler.

A unique steam boiler has been invented by David Wigert, proprietor of the David Wigert Boiler Works, Greenbush, Ill. As will be seen from the engraving, the boiler in its general proportions resembles a locomotive fire box. It is inclosed by brick work and is so arranged that the products of combustion pass around and through it three times before emerging at the breeching. The water in its circulation is partly by-passed through the tubular grates. The inventor claims that full steam pressure may be obtained in 30 minutes after starting in the 40 horse-power size, and in proportional lengths of time in the larger and smaller sizes, and that the boiler can be manufactured economically for all sizes up to 100 horse-power or more.

The boiler is peculiarly adapted to the burning of bituminous coal or oil because of its large amount of heating surface. In operation a thin fire is built on the water grates and air is admitted at the draft door which lies immediately above the grate and under the brick arch which serves as a dead plate for the feed door. As fuel is added from above the fire gradually extends upward, but the draft is sufficient to carry all gases in a downward direction. The burning gases pass through the longitudinal flues in the boiler proper to the combustion chamber in the rear, thence around to the left of the boiler and through the transverse flues into a second combustion chamber at the right side of the boiler, whence they pass upward to the third combustion chamber at the rear of the overhanging horizontal portion of the boiler, passing through a series of flues in that part to the stack. The heating surface furnished by the flues themselves is supplemented by that of the bottom of the overhanging cylindrical portion of the boiler, all four sides of the vertical portion and the two headers at the termini of the tubular grates.

The water is stated by Mr. Wigert to circulate with great rapidity through the headers and tubular grates which complete the circuit between the vertical water leg and the horizontal cylindrical part of the boiler.

The boiler was designed while the inventor was living in the oil region and was originally intended for an oil burning boiler only, but the down draft feature and the tubular grate bars are stated to make the furnace most efficient for soft coal as well. As the draft is down and the bottom of the coal bed burns first, the gases liberated at the first heating of the coal on top are consumed in passing through the incandescent fire bed, which prevents the discharge of black smoke even when a poor grade of soft coal is burned. Ordinary solid grate bars would not stand the heat that the down draft imposes on them, but the water cooled grates will and are useful in increasing the heating surface of the boiler and augmenting the circulation. The boiler is adapted to low pressure work for steam and hot water heating or for high pressure power service. A fuel saving of about 40 per cent. is claimed in power boilers and 50 per cent. in heating boilers.



Sectional Elevation of the New Steam Power and Heating Boiler Designed and Built by David Wigert, Greenbush, Ill.

Announcement is made that the Superior Jury at the Lewis and Clark Exposition, Portland, Ore., has approved awards in the electrical department relating to the exhibits of the General Electric Company, which is the largest manufacturer exhibiting in that department. The highest award granted by the jury is a gold medal and that company received a gold medal for the best exhibit in the electrical department and also 18 other gold medals, one on each of 18 features of the exhibit. The exposition, in common with all the recent American expositions, is lighted by Edison incandescent lamps, furnished by the General Electric Company. A very unique feature was the extended use of Meridian lamps.

A pamphlet circulated by the Columbus Iron & Steel Company, Columbus, Ohio, bears the title "The Value of Analysis," this referring to the analysis of pig iron for the foundry. The company's furnaces at Columbus produce about 500 tons a day, and its foundry iron is known as "Buckeye." In connection with a discussion of the place of chemical analysis in the making of foundry mixtures, the booklet takes up the constituents of pig iron and the physical properties of the resultant cast iron. The results of tests of castings made from a mixture containing Buckeye iron are given, and a table is appended illustrating a method of calculating silicon, sulphur, phosphorus, manganese and carbon in a theoretical mixture of irons.

The Watres Automobile Brake.

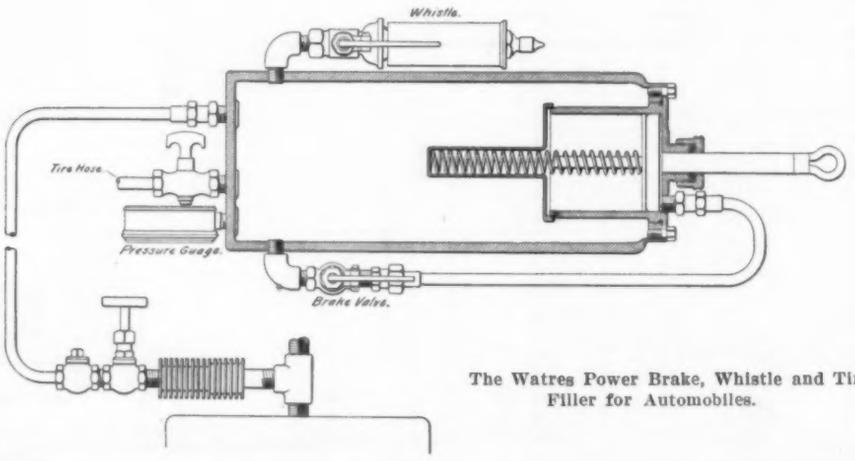
The Watres spent gas brake for automobiles, which has recently been put upon the market by the Gas Engine Whistle Company, 1183 Broadway, New York City, was the outcome of a condition similar to that which brought out the necessity for the Westinghouse air brake. This brake is a simple arrangement for controlling automobiles by power direct from the engine. The illustration herewith indicates the manner by which this power is obtained. A connection is made direct to the explosion chamber of the engine and at each explosion as much spent gas is taken as will pass through a 1-64-inch opening. The spent gas so taken is stored in a reservoir 6 inches in diameter by 15 inches long, and this reservoir as shown in the engraving embraces the entire apparatus.

In one end of the reservoir is a small cylinder in which travels a piston connected with the brake shaft of the car. The valve, operated by a cord on the steering wheel, admits pressure from the storage end of the reservoir to the brake piston. This piston has a travel of 4 inches, and with the pressure from the usual automobile, about 100 pounds, has a pulling power of over 1 ton. As soon as the valve is released the piston is returned to its original position by a spring, as shown.

The piston of the brake is connected to the brake shaft on the car by a flexible wire rope, so that the installation of the Watres brake does not interfere in any way with the present brake system of the car nor with the use of the ordinary hand levers, if they are desired.

To the reservoir is attached a small chime whistle, which is blown by the same power that operates the brake. A separate cord connects the whistle valve with the steering wheel. In the operation of the car a touch of the finger on the brake cord will apply the brake as quickly or as slowly as is desired, and a touch on the other cord blows the whistle, so that the hands on the wheel have complete control. Another connection to the reservoir is used for filling tires with spent gas by running the engine while the car is standing still. These three features practically eliminate from automobiling all expenditure of strength on the part of the driver. The car is under complete control every minute and can be slowed down or instantly stopped.

The company making these brakes has been in the business of building whistles for gas engines for some years and its familiarity with the use of spent gas from gas engines has enabled it to perfect this important feature in automobiling.



The Watres Power Brake, Whistle and Tire Filler for Automobiles.

J. H. Morrison, author of "History of American Steam Navigation," is writing a series of articles for the *Scientific American Supplement*, New York, on "Iron and Steel Hull Steam Vessels of the United States," the first installment of which appeared in the issue of October 21. The series of articles will be exceedingly interesting to those who are desirous of ascertaining the facts in connection with the early history of this industry. Mr. Morrison is a painstaking writer who is thoroughly familiar with shipbuilding and has brought to his task the essential requirements for making an investigation of this kind both authentic and comprehensive. The first article shows that iron hulls began to be used in this country at a very early period. The facts on this point, which are given by Mr. Morrison, will no doubt surprise many who had been of the impression that the use of iron in shipbuilding is of comparatively recent date.

A Challenge to Electrical Transmission Makers.

The American Mfg. Company, 63-65 Wall street, New York, issues the following statement: "In the spring of 1904 the engineer of our transmission rope department read a paper before the New England Cotton Manufacturers' Association showing the relative cost of rope, belt and electrical drives in cotton mills. This paper brought forth considerable criticism at the time, the most severe coming from advocates of electrical transmission. Our reply to this criticism was the following offer, which was printed in practically all of the technical and trade papers of the United States:

"'The American Mfg. Company will agree to furnish the necessary rope sheaves, rope, and driven head shafts for the main drive of any cotton mill, using 500 or more horse-power developed at the mill site, at one-quarter the price for which any responsible company furnishing electrical apparatus will agree to install generators, motors, motor shafts, switch board, wiring and other appliances necessary to electrically transmit the same power. Where the power is generated at a distance from the mill site, if the mill will install one central motor, the American Mfg. Company will agree to distribute the power to the main line shafts by means of rope drives for half the cost of electrical apparatus to distribute the same power. This offer is made to any cotton or woolen mill in the United States.'

"It is 16 months since this offer was made. So far no manufacturer of electrical apparatus has come forward to take up the challenge. We wish now to repeat the offer, with the following addition:

"'We will guarantee to any cotton or woolen mill using 500 horse-power or more a saving of 25 per cent. in fuel consumption in favor of rope drives over any electrical equipment that can be installed, the same engine being used for both transmissions. Further, in case we fail, we will remove our apparatus without expense to the mill owner and pay a forfeit of $10,000 to cover loss and inconvenience to the company making the trial; provided any concern furnishing electrical appliances will take the other side of the proposition and duplicate this offer.'"

A jarless pneumatic hammer is being placed on the market by the Helwig Mfg. Company, St. Paul, Minn., maker of pneumatic tools and other labor saving devices. It is stated that owing to the lack of vibration in the pneumatic hammer there is no strain on the user, and for that reason it increases the working capacity of the operator. The 9-inch stroke riveting hammer weighs but 14 pounds and will drive rivets up to 1¼ inches.

Office Records of Machinery Catalogues.

It is important to the dealer in machinery, in common with those in many other lines of trade, to have quick access to catalogues and circulars from both the manufacturers whom he represents and the trade as a

OFFICE RECORD
DO NOT REMOVE OR DESTROY.
PUT BACK IN CASE No.....
SEC. No.....CAT. No.....
QUANTITIES OF THIS ITEM ARE IN
CASE No.....SEC. No.....

Fig. 1.—Rubber Stamp Impression Put on Catalogues and Circulars.

whole. It often happens that a dealer has a chance to place an order for a product which he does not handle, but which he can make a profit on by dividing commission with another dealer.

The Boston office of the Prentiss Tool & Supply Company has worked out a system which works admirably in

			OFFICE RECORD CATALOGUE OR CIRCULAR			QUANTITIES OF CATALOGUE OR CIRCULAR		
DATE	NAME OF FIRM OR MANUFACT.	PUBLICATION	Case No.	Sec. No.	Cat. No.	Case No.	Sec. No.	Cat. No.
	Cincinnati M. T. Co.	*1900 Cat.*	*1*	*22*	*8*	*10*		
		Circulars	*1*	*2*	*6*	*2*	*8*	
	Cleveland Planer Wks.	*Circular*	*1*	*9*	*19*	*2*	*34*	
	Cleveland C. & C. Co.	*Circular*	*1*	*2*	*8*	*2*	*9*	
		Cat. B	*1*	*26*	*5*			
	Cleveland M. T. Co.	*Circular*	*1*	*64*	*1*			
		Catalog	*1*	*64*	*9*			
	Cleveland B. & S. Co.	*Catalog*	*1*	*38*	*9*			
		Catalog 1902	*1*	*44*	*5*	*2*	*9*	

THE IRON AGE

Fig. 2.—The Card for Indexing by Manufacturers, 4 x 6 Inches. White.

accomplishing the desired end. The catalogues are divided into two classes—one known as the office record catalogues or circulars, consisting of every machine tool catalogue that can be procured; the other of duplicates of catalogues and circulars of the manufacturers for which the office acts as agent, these duplicates being al-

NAME OF ARTICLE *Milling Machines*		OFFICE RECORD CATALOGUE OR CIRCULAR			QUANTITIES OF CATALOGUE OR CIRCULAR		
DATE	NAME OF FIRM OR MANUFACTURER	Case No.	Sec. No.	Cat. No.	Case No.	Sec. No.	Cat. No.
	Beaman & Smith	*1*	*1*	*18*			
	Becker-Brainard	*1*	*1*	*23*	*2*	*3*	
	Cincinnati M. M. Co.	*1*	*2*	*4*	*2*	*7*	
	Fosdick M. T. Co.	*1*	*23*	*3*	*2*	*13*	
	Adams Co. The	*1*	*19*	*5*	*2*	*1*	
	Grant Mfg. Co.	*1*	*3*	*16*			
	Hill, Clark & Co.	*1*	*3*	*19*	*2*	*15*	
	Le Blond M. T. Co. R. K.	*1*	*4*	*16*			
	Waltham Watch Tool Co.	*1*	*7*	*6*	*2*	*38*	
	Ingersoll M. M. Co.	*1*	*24*	*6*	*2*	*18*	

THE IRON AGE

Fig. 3.—The Card for Indexing by Tools, 4 x 6 Inches, Blue.

ways available for mailing in answer to inquiries or to give to the prospective customer who calls at the store. There are cabinets or cases for each class, each case and each of its sections bearing a number conspicuously displayed.

Upon the cover of each catalogue or other piece of literature is pasted or stamped the impression shown in Fig. 1. This blank is filled out, making it easy to return the catalogue to its proper place, and when it constitutes a part of the office record facilitating the securing of a duplicate from the cases devoted to that purpose.

A card catalogue affords the necessary quick reference. Every catalogue or circular is indexed by the name of its manufacturer on a card of the form shown in Fig. 2, and also under the name of the tool or tools with which it has to deal on a card like the one reproduced in Fig. 3. The records by manufacturers are upon white cards and those for tools upon blue cards. It will be seen that there can be no delay under this system, and the contrast between doing business with such an adjunct and a happy-go-lucky care of catalogues is a strong one.

The Norton Grinding Company's Apprentice System.

The Norton Grinding Company, Worcester, Mass., has established a new trade, that of cylindrical grinders, in connection with an apprentice system which is about to be introduced at its shops. This course will be entirely separate from that of the regular machinist apprentices. It will be shorter and will specialize on cylindrical grinding, using the company's heavy machines, and will include the erection as well as the operation of the machines, but not the manufacture of their parts. There will be careful instruction in the selection of abrasive wheels and their functions and general characteristics. In his contract the apprentice agrees that if at any time he becomes capable he shall, if so ordered, go out to customers of the company, set up machines and instruct workmen in their operation. At any time when it is agreeable to both employer and apprentice the latter may be released from the remainder of his apprenticeship to enter the employ of a customer to do cylindrical grinding with the company's grinders. He must serve a probationary period of six months before entering into contract as an apprentice, and with the contract he must make a deposit of $25, which shall be forfeited if he violates his agreement and leaves the company's employ. His two years, exclusive of the probationary six months, will be divided in five equal periods, the pay for which will be 8, 9, 10, 12 and 15 cents an hour.

An apprentice course for machinists will also be established of three years, also in five periods, with the same wages as the apprentices in cylindrical grinding, the periods being correspondingly longer. The apprentice in this course will also serve six months on probation and will make a deposit of $50 to bind the fulfillment of his contract. As in the case of the apprentice in cylindrical grinding, the deposit, plus 4 per cent. interest, will be returned at the end of the apprenticeship. He will be taught everything in connection with the work of the shop excepting cylindrical grinding and planer work, the latter being the usual exception, because the high cost of the machine makes it necessary that an expert be employed in order to get a full return on the money invested. The company has under consideration higher forms of apprenticeships, in which young men with better education than the ordinary candidate will be taken, including possibly a graduate of a polytechnic institute. The general system is founded upon that in operation at the shops of the F. E. Reed Company, Worcester.

The Pittsburgh Coal Company Buys Hero Coke Company.—At a recent meeting of directors of the Pittsburgh Coal Company the purchase of the plant of the Hero Coke Company was ratified. The property bought covers 30 acres of land on the Redstone branch of the Pittsburgh, Virginia & Charleston Railroad, on which are 30 ovens. The company proposes to erect more ovens in accordance with the plan to enter the coke field in an extensive way. The directors also approved contracts for the building of 187 coke ovens, of which about 50 will be located at the Colonial No. 3 plant, nearly 100 at the Colonial No. 2 plant and 40 at the Euclid mine on the Baltimore & Ohio Railroad. Plans were approved for the construction of a fueling dock at Point Aux Fresnes, along the Sault Ste. Marie River, to cost $100,000. This dock is to give the Pittsburgh Coal Company the entire fueling

business of the United States Steel Corporation fleet under a 25-year contract. The building of the dock, which will be the largest of the kind in the world, will be done by the company.

An Accounting System for Mining Supplies.*

BY W. M. JEFFERY.

When we take into consideration the fact that our mining supplies constitute approximately 30 per cent. of the cost of producing our ores it is not to be wondered at that operators are deeply interested in the methods of accounting for such a large percentage of the producing cost. The first duty of an individual, a copartnership or a corporation with a valuable asset to be intrusted to the care of an employee is to select a person who has the ability and the honesty to take good care of and account for such asset. A large amount of capital is required to be invested continually in material necessary for the operation of our mines and sufficient material must be on hand at all times to assure continuous operation. It would be false economy, surely, to allow the stock of material in our warehouses to reach a point where operations would have to be delayed awaiting the receipt of material. On the other hand, an excess stock needlessly tying up capital must be guarded against and the oldest stock should be worked off whenever possible to prevent its becoming obsolete.

The General Warehouse Plan.

To accomplish the result of having our material account well guarded and to keep our investment in material at the lowest point consistent with economical operation some of the mining companies have adopted the plan of general warehouses — that is, where a mining company owns several mines in one locality, although the mines may be separated by considerable distances, they have a warehouse as centrally located as possible, where the entire stock of supplies for all mines is carried. This plan, in the first place, necessitates but one warehouseman with special ability for this work and saves the cost of having a man of this class at each mine. Clerical work of the warehouse can be done by cheaper labor under the direction of this one man. In the second place, this arrangement permits of carrying a smaller stock of supplies than would otherwise be possible. It is unlikely that a similar part of any class of machines will break at all mines at the same time, and one or two spare pieces carried in stock will guard the interests of all mines in the vicinity, whereas separate warehouses, one at each mine under its own warehouseman, would in all probability each have a part for a similar machine, as the warehousemen would possibly not be in close touch with each other. The extent our stock of mining supplies is reduced by the plan of central warehouses can only be realized by one thoroughly familiar with supply work. It may be said in passing that a great saving in the quantity of supplies necessary to be carried can be accomplished by using as far as possible uniform machinery at the various mines. This is especially true in the case of power drills, steam shovels and pumps.

Taking up the question of the man who should have charge of the warehouse, no merchant who does not give his personal attention to his business would think of employing a man to look after his stock for him in whom he did not have implicit confidence and whom he did not know as one having extensive experience in his particular line; nor would he think of offering such a man a salary that would not enable him to have all of the necessities and some of the luxuries of life and thus eliminate as far as possible any temptation for the employee to increase his income by giving attention to a side line or possibly in other ways more injurious to the employer's business.

There is stock in some of the mine warehouses in this region with a value of from $50,000 to $150,000. If the man who takes charge of this investment receives wages commensurate with the duties and responsibilities which are his operators can rely on it that they are receiving value for their expenditure. They can also rely on it that investment in supplies will not be larger than is absolutely necessary; also that a system of accounts will be evolved which will not only give a correct and satisfactory distribution of supplies used, but will also give whenever it may be desired a satisfactory and accurate inventory of material on hand.

The warehouse systems some few years ago were almost as numerous as the warehouses. During recent years, on account of the combination of various companies' interests, we have all had a very good opportunity of becoming familiar with the various systems and of studying this subject with a view to uniformity. We consider the following one of the most satisfactory systems that has come to our notice:

The Handling of Invoices.

Invoices covering purchases are received in duplicate and are sent to the person ordering the material, to be approved by him as to price, point of delivery, terms of purchase, &c. As soon as the invoices have this approval they are forwarded to the point to which the supplies are consigned. When the mine office receives these invoices the duplicate copy is sent to the warehouse for approval as to the receipt of the goods, the original copy being retained in the mine office until the duplicate is returned by the warehouseman, at which time he signs the original invoice, indicating that the goods have been received at the warehouse. Thus the chief clerk at the mine office may know at all times what bills have been referred to the warehouse which have not been returned to him. In this way he can watch cash discounts on bills and see that the warehouse does not hold the invoice beyond the discount period and thus lose the discount privilege. He can also have a check on the warehouse to see that it does not lose any of the invoices turned over to it for approval. It frequently happens that material does not reach the warehouses until after the discount period has passed. In such cases the mine office forwards the invoice for payment prior to the receipt of the goods in order not to lose the discount privilege where the invoice is from a well-established firm. A notation is made on the invoice that the goods have not yet been received and the treasurer uses his judgment in paying such invoices prior to the receipt of the material. Little if any risk is taken in doing this, for the reason that almost without exception the houses from which material is purchased would promptly and gladly make good any lost or defective material. As soon as both original and duplicate invoices are approved the mine office forwards them for payment.

Warehouse Records.

The warehouse records consist of a freight received book, a box of supply cards and a supply of debit and credit slips. As material reaches the warehouse a record is made in the freight received book, Fig. 1, showing date received, name of railroad, pro number and amount of freight charges; also consignor, date of invoice, articles received, quantity received, our number of invoice, date invoice was received, date invoice was approved and any remarks that may be found necessary. This book, in addition to being a valuable record of freight received, guards against passing an invoice for the same material twice. It can readily be seen of how much assistance this record is to the warehouseman in cases where goods are received prior to the receipt of an invoice. It is also a great assistance in checking freight bills where the freight bills are not received at the same time the goods are delivered, which frequently happens.

The supply cards, Fig. 2, are about 8 x 12 inches in size and are ruled in ledger form. The debit side shows the date of invoice, our invoice number, consignor, quantity, price and amount. The credit side shows date, account for which supplies were used, quantity, price and amount. We use one of these cards for each grade or size of each class of supplies—that is, we would have one card covering 40 per cent. powder, another card for 60 per cent. powder, one card for 1-inch elbows, another

* Paper prepared for the Iron Mountain, Mich., meeting of the Lake Superior Mining Institute, October 17-19, 1905. Mr. Jeffery is auditor of the Oliver Iron Mining Company of the United States Steel Corporation.

card for 1½-inch elbows, another for 2-inch elbows, &c. As soon as the duplicate invoice covering material purchased reaches the warehouse and is approved as to receipt of material the warehouseman charges on his supply cards, direct from the invoice, his various classes of supplies. The amount of freight is also charged on each card covering material entered thereon. The division of freight is made in cases where a number of items are received in one bundle, in accordance with weight of the various items. Probably all warehouses have a record of the weights of various fittings and other commodities that are liable to be shipped in one bundle and the division of freight is made based on these recorded weights. Each card then represents the cost of the various items of supplies delivered at the warehouse. The question of cartage will frequently arise. Where material necessitating considerable cartage is received for a specific purpose it is usually a small matter to apply the cost of the cartage directly against the material hauled, for the reason that it is usually of considerable bulk. However, when a team is sent to the depot and brings to the warehouse a miscellaneous assortment of supplies, and possibly does other errands on its way to or from the freight sheds, it has not been the custom to attempt to put the cost of cartage in such cases against the cost price of supplies, but such expense has been prorated to the operating cost accounts in proportion to value of supplies used or absorbed in a general surface cost account, which latter is considered as just a disposition as can be made of these small charges. The cost of operating the warehouse is not added to the cost of mining supplies. It is treated as a separate cost account, just as office expense is treated as a separate cost account.

FREIGHT RECEIVED RECORD

DATE RECEIVED	FREIGHT			CONSIGNOR	DATE OF INVOICE	ARTICLES	QUANTITY RECEIVED	INVOICE			REMARKS
	R.R.	PRO-NO.	AMOUNT					OUR NO.	DATE REC'D	DATE PAID	

THE IRON AGE

Fig. 1.—Warehouse Record of Supplies Received.

Charging Supplies to Operating Accounts.

In determining the cost at which supplies should be charged to the operating accounts two methods can be used: 1, An average cost of each size or grade of mining supplies on hand can be obtained by dividing the total value, as shown on the debit side of the respective supply cards, by the number of pieces on hand; 2, by using the price of the oldest supplies on hand until all items at that price have been consumed and then using the price of the next lot until they are consumed. It would be very unusual to have more than two different prices on any one size or grade of material in stock at once. We prefer this latter plan, for the reason that the stock then always stands at the very latest price that we have, and with the card system it is not difficult to tell what quantity is on hand at the old price. After the invoices have been recorded on the supply cards at the warehouse they are then turned over to the mine office, as previously outlined, and this completes the receipt of supplies.

The debit and credit slips are records covering the disbursement of supplies. The debit slip, Fig. 3, is a form about 8 x 11 inches in size, with a printed heading indicating the mine at which the supplies are used, the week during which the supplies are issued and the cost account to which the supplies are being charged. The credit slip, Fig. 4, is a form of the same size as the debit slip and has a printed heading indicating the mine at which the supplies are used, the week during which the supplies are issued and the class of supplies that is to receive credit.

Now let us take up the disbursement of supplies: No supplies are issued from the warehouse without an order from the superintendent of the properties or from some one authorized by him to issue orders on the warehouse. These orders, in addition to stating the items of supplies required, show for what account they are to be used and are signed by the superintendent or foreman issuing the order.

As the warehouseman has opportunity the material covered by these orders is entered on a debit slip. One of these slips is used for each cost, construction, improvement or other account that it may be deemed necessary to keep, and all articles of supplies used for each account are shown on the respective debit slips for the account indicated by the order on the warehouse for the material. There are seven columns on this form, one for each day in the week. These columns are for the purpose of saving extensions. If there are 100 pounds of powder delivered for stoping on Monday the grade of powder is noted in the article column on the stoping card and the weight entered in the first column. If 100 pounds are delivered the next day the article will not have to be entered on the debit slip the second time, but the weight is placed in the second column, and so on for the weight of that particular grade of powder delivered for each day during the week, at the end of which time the sum of weights for the six or seven days is extended in total quantity column, the price being filled in and extension made. This means an extension once a week for each size of each kind of supplies used for each account. At the end of each month a summary of these debit slips is made to show the total supplies charged to each of the operating, construction or improvement accounts. This summary consists of adding together the weekly total chargeable to each account.

In addition to entering these orders for material on the debit slips, as outlined above, they are entered also on the credit slip according to the class of supplies delivered. A credit slip is kept for each—one for explosives, one for candles, another for oils, one for iron and steel, &c. In entering the orders on these credit slips the items are entered by grades or sizes, and the same plan is followed in regard to collecting the number of pounds or

SHEET NO. _____

ACCOUNT_____ CLASSIFICATION NO _____

DATE	INVOICE		QUANTITY	PRICE	AMOUNT		USED		QUANTITY	PRICE	AMOUNT
	OUR NO.	CONSIGNOR					NO.	ACCOUNT			

THE IRON AGE

Fig. 2.—Warehouse Supply Card in Ledger Form.

pieces of each grade or size delivered during the week as is followed on the debit slips. A summary of these credit slips is made each month to show the total of each class of supplies used during the month, which is accomplished by adding together the totals of the four or five weekly credit slips. The total of the credit slips for a given period must equal the total of the debit slips for the same period, showing that the articles and values charged to the cost accounts agree with the articles and values that are being credited to the supply accounts.

From these credit slips we obtain the information necessary to complete the credit side of our supply card. Each grade or size of each class of supplies is shown separately on the credit slip and we obtain, as shown above, the total of each for a week, and this total can readily be transferred from the credit slip to the credit side of our respective supply cards. It is deemed advisable to have these transferred to the supply card at least once a week in order to have the supply card show more accurately the actual inventory on hand. If it were allowed to run for a month the card would be of little value until the month's work was entered.

DEBIT

Oliver Iron Mining Company

_____ MINE

Supplies Charged to Account No. _____ Week Ending _____ 190

CLASS NO.	ARTICLES								TOTAL QUANTITY	PRICE	AMOUNT

THE IRON AGE

Fig. 3.—Debit Slip for Disbursement of Supplies.

Office Check on Warehouse Records.

This completes the warehouse records covering disbursement of supplies. The supply cards can now be footed and balanced, showing the quantity and value of each kind of supplies on hand. The warehouse records are not duplicated in any way in the mine office, although from our mine office books we can check the correctness of the warehouse records in the following way:

The mine office has an invoice or an audited voucher record with a debit and credit page, each divided to provide for a total and for 27 different classes of supplies. At the first of each month the inventory at the close of the preceding month is brought forward on to the debit page of this record. Each invoice after it is approved and passed for payment by the mine office is entered on the debit side of this record and the value of the items thereon distributed into the proper columns. As soon as all invoices for the month are entered—it will be borne in mind that the warehouse records and the mine office records close with the same invoice—the various columns in this record are footed and balanced across with the total column. These footings give of course the inventory at the close of the preceding month of each class of supplies, plus the additions of each class of supplies during the month. Were there no supplies consumed this would represent the inventory of material on hand. However, as soon as the warehouse has its debit and credit slips completed and balanced for the month and has taken the necessary record on the credit side of its supply cards from its credit slips the debit and credit slips are sent to the mine office, together with a summary from each, which has been prepared therefrom, as shown above. The mine office from these summaries makes its journal entry, crediting each of the 27 classes of supplies as per summary of credit slips and charging from the summary of debit slips each operating, equipment or other account which has been found necessary to keep. This journal entry, in addition to passing through the journal as to totals, is entered on the credit side of the mine office invoice record in detail. The difference between the debit and credit pages of this record will now show the book inventory of each of the 27 classes of supplies on hand.

Warehouse Monthly Balance Sheet.

While the mine office keeps but 27 divisions of supply account the warehouse has in its supply card record a large number of subdivisions of each of these classes. Once a month the warehouse furnishes the mine office with a balance sheet which shows the amount of each of the 27 classes of supplies on hand at the end of the month according to the supply cards, and these balances the mine office checks against the balances as shown by its invoice record. This balance sheet is made up by adding together the balances shown on all cards in the warehouse going to make up a subdivision on the mine office record. For instance, the warehouse may have 25 cards covering different sizes of iron and steel and the total of all of these 25 cards will be required to make up the balance of the iron and steel account in the mine office record. If the warehouse records are not in agreement

CREDIT

Oliver Iron Mining Company

_____ MINE

Supplies Consumed Week Ending _____ 190 _____ Class

CARD NO.	ARTICLES								TOTAL QUANTITY	PRICE	AMOUNT

THE IRON AGE

Fig. 4.—Credit Slip for Disbursement of Supplies.

with the mine office records on any of the various classes of supplies the work must be checked up and the trouble located and corrected.

In addition to this check on the warehouse as to correctness of its records we have of course the actual inventory, and the balance of no kind of supplies can be in error for any length of time, because the warehouses keep continually checking the actual inventory of material on hand with the card inventory, and if any discrepancy exists it is readily located and adjusted.

While this matter of checking actual inventories with card inventories is being continued at every opportunity it is done especially when a new supply of any class is being ordered—this, for the purpose of knowing that it is absolutely necessary to order the supplies and also because, when the stock is almost exhausted, it is the most convenient time for making an actual count or taking the actual weight of any material.

It may be contended that in using cards and the debit and credit slips there is a possibility of some of these records being lost. This of course is a contingency that must be met with in all loose leaf records and is well guarded against by having proper binders both in the warehouse and for filing in the mine office.

Advantages of the System.

The benefits to be derived from a system of this kind are many. The first that we would mention is the fact that we are enabled to get a correct supply cost on our cost sheets by being able at all times to know absolutely the cost of each article of supplies, because the inventory is so well guarded from leaks of different kinds it is not necessary to add to our supplies consumed a percentage of profits to make up for any possible loss in the handling of supplies. If a cost sheet is to be of any use to an operator it must be accurate; otherwise it is misleading rather than beneficial. Anything therefore tending to improve the cost sheet is of great benefit to the operator who is responsible for the cost of producing ore.

Next in importance is the benefit of having the supply records in a condition where the warehouseman knows absolutely what he has in stock and can be governed accordingly in making requisitions on the purchasing department for additional supplies, thus keeping down the investment in mining supplies to the lowest point consistent with good operating.

Another important advantage in a system of this kind is the readiness with which an inventory may be arrived at at the end of the year, or for that matter at any time during the year. All are familiar with the task of taking a complete inventory at the end of each year, when the weather conditions are very unfavorable, when no one knows just how the supplies are going to come out, when the closing work of the year makes it hardest to spare the necessary time and when the time for taking the inventory is necessarily limited. If this system is carried out as it should be and the cards checked continually with the actual material on hand there should be no hesitancy about taking the card inventory at the end or the year as being actual.

The benefits of a system of this kind would increase in direct proportion to the quantity of supplies necessary to be carried in stock or volume of supplies consumed. If the stock of supplies at any point is so small that the warehouseman can take a complete inventory of them quickly and accurately a system of this kind would not be of the same advantage as where the stock is too large to permit of an inventory being taken in this way.

With the continued centralization of interests the general warehouse idea will undoubtedly be given more attention than in the past, and as these general warehouses increase in number a revision of the old warehouse systems will have to be made to meet the requirements of the new conditions. It was with this in view that the system which has just been outlined was adopted by some mines. It is true that it will cost a little more to use this system than to use some of the older and simpler systems in vogue, but the additional labor necessary should not be judged by the amount of detail which it would appear is necessary from the above. It usually takes longer to explain how a piece of work ought to be done than it does to do the work when you know how, and we have found this is especially true in outlining a supply card system. It will be found that the advantages of such a system more than offset any additional labor that may be necessary. The additional cost will be found comparatively small, and it is always quicker and more economical to do a thing right than to do it wrong.

The Iron City Chain Works.

James McKay & Co., operating the Iron City Chain Works, McKees Rocks, Pittsburgh, Pa., have recently enjoyed a very large increase in their business and in order to take care of their rapidly growing trade are adding a building 70 x 300 feet to their present shop. A forge department for manufacturing several lines of railroad forgings has also been added, in which has been installed a 6300-pound steam drop hammer for the purpose of manufacturing journal box wedges and center plates. This new forging plant has only been in operation about 60 days, but it is crowded with business, receiving one order recently for 75,000 drop forged steel journal box wedges for the new steel cars recently ordered by the Pennsylvania and Baltimore & Ohio railroads. Other improvements are under way by this firm which it expects will be completed about December 1. The building referred to above is being erected by the American Bridge Company. When it is completed and all the equipment is installed the firm will be able to increase its output about 60 per cent. in the manufacture of forgings and chain. Business is so active that McKay & Co. have been compelled to refuse orders because they could not make deliveries. Should its business continue to expand as it promises to do the firm will be compelled to make still further additions to its works.

On the night of October 18 the forge department of this plant was destroyed by fire, but the machinery was not damaged to any extent, and it is expected to be in operation within a week or ten days and the entire forge department in operation in four or five weeks. The firm states that it will not be inconvenienced to any great extent by the loss, as it had a small quantity of different chain forgings in stock. With the exception of a few items in the line of eye bolts, &c., no serious inconvenience will be caused by the fire and orders will continue to be accepted for prompt shipment.

The McClintic-Marshall Construction Company.

This company has about completed the building of its No. 2 bridge shop at Rankin, Pittsburgh. The new shop is 200 x 500 feet, with an adjacent beam shop 70 x 180 feet, and is one of the best equipped bridge shops in the country. The building is constructed of steel, with side walls of cement on expanded metal. The entire structure is well lighted and has a practically clear floor space for its entire width and length. It contains the most powerful riveting machines made, the punches all being electrically driven and designed to do very accurate work. The reaming and drilling equipment is the most modern that could be had. In the main building there are 20 overhead traveling cranes of from 10 to 50 tons capacity, and, in addition, three yard cranes of 15 and 20 tons capacity have been installed.

The McClintic-Marshall Construction Company also operates large shops at Pottstown, Pa., which have recently been enlarged, the buildings now covering about 15 acres of ground. A new girder shop, 136 x 140 feet, has been built, which is equipped with two electric traveling cranes capable of handling the largest girders made. The shearing, punching, reaming, riveting and milling equipment is similar in all respects to that in the Pittsburgh shops, the power used being steam and electricity.

Both plants are located very close to sources of supply of raw material and have excellent railroad facilities. The number of men employed in the shops and in the field, when both plants are running full, is about 3500. The capacity of the two plants is now over 120,000 tons of bridge and building work per year, or about twice the capacity of any other company except the American Bridge Company. Offices are maintained in Pittsburgh, New York, Chicago and Pottstown, Pa.

The Lake Superior Mining Institute.

Eleventh Annual Meeting.

BY DWIGHT E. WOODBRIDGE.

The eleventh annual meeting of the Lake Superior Mining Institute was held last week on the Menominee range, with headquarters at Crystal Falls. There was an attendance of about 250 members and 61 were added to the membership by new applications. The meeting, while full of interest, might be criticised as hardly up to standard and did not appear to fulfill the possibilities that presented themselves. Nevertheless those present enjoyed themselves exceedingly and there was much of information in the sessions, papers and excursions. The arrangements for the meeting were, as usual, in the hands of Secretary A. J. Yungbluth of the Cleveland Cliffs Iron Company and were carried out with great skill, especially when the nature of the facilities of towns on the Menominee is understood. Local committees at Iron Mountain, Escanaba and Crystal Falls zealously seconded his efforts and the schedules passed off with great smoothness. The Chicago & Northwestern and Chicago, Milwaukee & St. Paul railroads were free with special trains and made it possible for the Institute to visit at speed many points that otherwise must have been unseen.

The session opened on Tuesday, during which day the mines of the Chapin and Pewabic Iron companies at Iron Mountain, the Florence at Florence and mines in the Crystal Falls district were visited. In the evening at the Iron County Court House papers were read and the Institute listened to President O. C. Davidson, who delivered a brief annual address.

Chapin and Pewabic Mines.

It had been five years since this Institute had visited the Menominee and there was much of change about the mines. Chapin presented some interesting features. It is mining this year about 970,000 tons and is employing 900 men. It is sinking C shaft at the Ludington to the depth of 1600 feet and has now reached 1100 feet. This shaft is especially interesting, as it is to be of steel framing and the frames are now under construction at the mine's large machine shops. Steel 4-inch I-beams are used for part of the frame and 30-pound steel rails for the rest. The stuttles are rails and 4 feet long and the shaft is 12 x 22 feet inside framing. It consists of a pump column compartment 10 x 12 feet, a cage and two skip compartments, with a triangular space in the pump compartment for a balance lift. The shaft represents all that is newest in the experience of the Oliver Iron Mining Company in the sinking and framing of steel shafts, and the company has had considerable experience, for it has been sinking these steel shafts for the past three years at mines whose future is considerable and whose product is large.

In this shaft is to be installed the great Cornish pump that was taken out of D shaft at Chapin about nine years ago. This pump now lies on the surface, where it was placed when the wrecking of that shaft by the caving of the surface above mined ground put the shaft out of commission. This pump has a capacity for lifting 3000 gallons from a depth of 1500 feet, with 125 pounds of steam at the throttle. Its surface parts weigh about 600 tons, the fly wheel alone footing up to 164 tons and the underground parts for the depth proposed to put it will weigh 300 tons more. Probably if the company did not have the pump on hand and if its efficiency was less it would not be installed again. Details of this pump follow: The engine is of the steeple compound crank and fly wheel type. The diameter of the high pressure cylinder is 50 inches, of the low pressure 100 inches and the stroke is 120 inches. The diameter of piston and pump rods is 7 inches and the pump rods will reach a depth of 1500 feet. There are double beat Cornish valves in engine and pumps. The diameter of the plungers is 28 inches and the lift is 120 feet. This giant machine will be installed the coming year. With all its weight and the immensity of its parts it is exceedingly economical.

Pewabic mine, which was visited the same morning, is mining this year 530,000 tons and has 533 men in its employ—about the same ratio as Chapin. There is nothing of especial interest at Pewabic other than its new Prescott triple expansion pump, with steam cylinders of 18, 28 and 47 inches, 12-inch plunger and 24-inch stroke. This pump is designed for duty of 1200 gallons a minute from 1200 feet underground.

Crystal Falls Mines.

Crystal Falls, which was visited the same day, is looking remarkably well. There is an air of permanency about the region and of thoroughness about the mines and equipment that is in remarkable contrast to the mine plants of Corrigan, McKinney & Co. a few years ago. It was then commonly known that any mine plant of this firm was easy to recognize at first sight by reason of its antiquated and mussed-up appearance, but now the situation is entirely changed. This is quite largely due in all probability to the influence of the late Amos Shepard and his excellent and skillful successor, General Superintendent W. J. Richards of Corrigan, McKinney & Co., supplemented of course by the willingness of the firm itself to adopt the best as its opportunities have improved.

Tobin mine was three years ago but a single test pit. Now it has two shafts, one 600 and the other 680 feet deep. The mine is operated on the caving system, but with certain interesting modifications demanded by the nature of the ore in some parts of the property. The surface equipment consists of a new Nordberg automatic balance hoist, with 7-foot drums, and a fine 25-drill Rand compressor. Its product this year will be 240,000 tons. At this mine the stack was not tall enough to give draft on account of the high surrounding hills and a fan was set at the base to induce draft. It was found that this device doubled the efficiency of the stack. There is also a fuel economizer in the stack for using waste gases.

The same firm's Great Western mine has another excellent plant, equipped with a well arranged and capable machine shop for the Crystal Falls group. The most interesting thing about this property is its Harris direct air pressure pump, which is lifting sandy surface water out of the old cave, whence it would otherwise flood the mine. In this plant the small air compressor at the surface is connected with two tight tanks, which in turn are connected with the water supply. There is an automatic switch, through which air is drawn out of one tank and forced into the other. The water will rise in the exhausted cylinder, while that in the cylinder being filled with water will be forced by the water to the surface. As soon as the condition in the two tanks are reversed the switch automatically reverses and the process is duplicated on the other side. This pump is now lifting about 800 gallons a minute and is capable of a much greater duty. It can handle water with 40 per cent. of solids and is installed at this mine on that account.

Other Corrigan mines in the Crystal Falls district were not visited, but it was understood that much work was going on at them all and that there was not a pound of stocked ore from last winter left on the surface at any of them.

Papers Read on Tuesday Evening.

In the evening a paper by L. Battu on the "Rateau System of Utilizing Exhaust Steam for Regenerators" was read, as were those of W. A. Siebenthal on "Methods of Iron Ore Analysis Used on Lake Superior," by F. L. Burt on "Surveying for Secondary Mine Openings," and by F. H. Armstrong on "Some Recent Changes in the Equipment of the Republic Mine." Of these, that of Mr. Battu was especially interesting and valuable. A paper by W. J. Rattle of Cleveland on "Cargo Sampling of Iron Ore at Lower Lake Ports" was distributed; it was, in fact, the only paper presented to the Institute early enough to be printed for distribution. A paper on "Accounting System for Mining Supplies," by General Auditor W. M. Jeffrey of the Oliver Iron Mining Company had been prepared, but on account of Mr. Jeffrey's enforced absence it was not read.

The Penn and Aragon Mines.

The following day the Penn Iron Mining Company's properties around Vulcan and Norway were inspected. There is little to be said at this time concerning these

mines, which are well maintained and are making a steady annual production of something under 500,000 tons, but whose machinery plants are not to be admired. At Sturgeon Falls, about four miles from the mines, the company is beginning the construction of a concrete dam for the production of power sufficient for the electrical operation of its mines to the minutest detail. It seems most remarkable that with both rapids and mines in continuous operation for many years no impelling thought had ever been given to their obvious connection until now, especially as the Penn Iron Mining Company has been paying out about $100,000 per annum for coal; probably, however, there have been sufficient reasons for this delay that are not public. There is to be an available fall of 22 feet and the energy developed will be a minimum of about 2500 horse-power. Two 1500 kw. generators will be installed and the pumps will be six-stage centrifugal.

Aragon mine of the Oliver Iron Mining Company was also inspected that day. This property has been disappointing in its underground development of late, having held out promises that have not been realized. There was apparently a very broad ore deposit, but it has been found that this is a mere roll of the formation and that the ore looked for did not show up. It is now understood that the future is more promising and that a far larger mine than had been feared is showing up. Aragon has been equipped with a large triple Prescot pump, a duplicate of that in the Pewabic in No. 5 shaft, and it has a four-stage compressor for pneumatic haulage. In its No. 5 shafthouse it also has a fine new Sullivan automatic hoist, similar to that placed at Savoy-Sibley by the same company. This hoist is equipped with an ingenious automatic device for the prevention of overwinding and is in all respects a very up to date plant. The shafthouse is of steel, of the type used by the Oliver Iron Mining Company, built by the American Bridge Company.

Traders mine, a large open pit, a quarry of hard ore that is mined by milling into raises and tramming to a shaft, was also visited and was of interest to those who had not recently noted development of open pit work.

Business Session Wednesday Evening.

The evening was occupied by a business meeting. At this session James McNaughton, manager of the Calumet & Hecla, was elected president, and the copper country was virtually selected for the next meeting. Messrs. Yungbluth and Hopkins were re-elected secretary and treasurer, a deserved compliment to their long and almost unremunerated work for the good of the organization. The reports of the Institute were read and new members to the number of 61 were admitted. Several papers were read. One on the history of that part of the Menominee range visited showed that it is this year shipping about 2,800,000 tons of ore and employing 3000 men and that the total shipments to now from the beginning of the district, in 1878, had been 51,850,000 tons.

One of the interesting papers of the session was that of John T. Jones on the unwatering of the Hamilton mine in 1896 under his charge. That work was memorable from the fact that in 60 days 122,450,000 gallons of water had been raised out of the Chapin group, of which the Hamilton is a part, from depths varying from 90 feet from the surface to 1460 feet, and from the further fact that for the first time bailers were used for unwatering. This paper, with diagrams, will soon be ready for publication. There was also a paper on the detection of curvature of diamond drill holes, which was merely a reamplification of that given by Mr. Channing some years ago, when it was shown that hydrofluoric acid was an admirable detector. But it is a fact, not brought out in this paper, that the actual deflection of the holes is not to be determined by the glass rings etched by the acid, for hydrofluoric acid, if in the bottom of a tube, will not rest horizontally, and differs in angle with the verticality of the hole. It is in reality valuable merely to detect variations in the hole, but cannot measure them precisely.

Mr. Burr's paper on the measurement of angles and method of surveying what he called secondary mine openings was read and diagrammed at this meeting.

Thursday's Visits.

The following day the Institute inspected the tie chloridating plant of the Chicago & Northwestern Railroad, where 600,000 or 700,000 ties are annually treated at a cost of 15 cents each, their life being doubled thereby. An opportunity was given to see the Escanaba ore docks, of which there are now six, with another under way, and a walk was taken through the charcoal furnace and chemical plant of the Cleveland Cliffs Iron Mining Company at Gladstone. This plant makes charcoal pig iron and carbonizes wood for fuel, saving the by-products.

Reopening of New Jersey Iron Mines.

The Warwick Iron Ore Company, 11 Broadway, New York, has recently acquired the Baker iron Mines near Wharton, N. J., and has three pumps at work unwatering the mine. The last work was done about 22 years ago, the previous lease being to the Allentown Iron Company. There are three shafts, two of which will be worked, the expectation being to take out about 200 tons a day. About 50,000 tons of ore is available for immediate working when the mine is again in operation. The big vein on this property is from 10 to 20 feet thick. The ore runs from 60 to 62 in metallic iron.

A renewal of operations at other Morris County iron ore properties is assured by the formation, a few months since, of the United Mines Corporation, with a capital of $250,000, $50,000 of which is 6 per cent. non-accumulative preferred and $200,000 common stock. The company has acquired magnetic iron ore properties on a royalty basis, with an option to purchase within the next five years. These are the Weldon, Dodge and Copley mines, situated about 10 miles north of Dover, N. J. The Weldon property, the first to be reopened by the new company, has eight shafts and has been worked at intervals as far back as Revolutionary time. Its deepest shaft is down 400 feet, and about 150,000 tons of ore have been mined. The last active operators were Heckscher Sons & Co., of Philadelphia, Pa., who abandoned the mine in 1893. After unwatering the mine the new company expects to take out about 200 tons a day. The Dodge mine has three shafts, the deepest of which is 250 feet and its vein is said to be the same as that of the well known Hibernia mine. William Esson is president of the United Mines Corporation; Edward L. Suffern, vice-president; J. W. Coffin, treasurer and manager, and H. D. Manson, secretary.

The Robins Conveying Belt Company, Park Row Building, New York, has furnished an interesting conveying equipment to the Kosmos Engineering Company, Brooklyn, for handling concrete materials used for construction work on the piers of the new Manhattan Bridge over the East River. It is necessary in this case to mix the concrete at a point some distance from the water's edge and in order to convey and elevate the material to the mixers the machinery referred to is employed. A derrick equipped with 1⅝-yard clamshell bucket unloads the barges and delivers the sand and gravel through a hopper and a shaking feeder to a Robins belt conveyor 18 inches in width and 208 feet between centers. The shaking feeder is used to obtain a steady and even flow of the material to the conveyor. The conveyor discharges it at the foot of a bucket elevator. The elevator has a total length of over 81 feet and delivers to the mixers at a hight of 77 feet from the ground level. The buckets are spaced 13 inches between centers. The apparatus runs at a speed of 185 feet per minute and is chain driven from an electric motor located on a platform 27 feet from the head end. The belt conveyor is driven by a 5 horse-power motor at its discharge end. Although the mixers, which are of the Hains gravity type, are operated at a maximum speed, the conveyor system has a capacity greater than the mixers. The elevator and the belt conveyor are temporarily installed so that they can be used on future contracts. The length of the conveyor can be altered by changes in the length of the belt and in the number of idlers.

THE IRON AGE

1855—1905.

New York, Thursday, October 26, 1905.

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CHARLES KIRCHHOFF, - - - - - - - } EDITORS
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A. I. FINDLEY, - - - - - - - - -
RICHARD R. WILLIAMS, - - - - - - - - HARDWARE EDITOR

Incitements to Conservatism.

A fortunate accompaniment of the greatest prosperity the iron industry of the United States has ever known is the present widespread appreciation of the necessity for conservatism. There are evidences that the iron trade, from the very reiteration of the statement that it has been unable in times past to see in the midst of good times how counter currents might set in, is really learning to anticipate changes. It has been stated, for instance, in connection with the surprising railroad equipment orders placed in recent weeks that, being in part compensatory for the failure of the roads to buy last year and in part anticipatory of future expansion in traffic, they are to be regarded as extraordinary and not as a criterion. Throughout the past twelve months the railroads have been the mainstay of the iron trade, yet it has been appreciated that their habit of blowing hot and cold by turns cannot be considered as permanently cured. While railroad equipment companies have a very large portion of their capacity already pre-empted for 1906, they are not deceiving themselves with the expectation that such a volume of business is to be looked for in the succeeding year. Following such a remarkable buying campaign as that of the present month in cars and locomotives leading railroads may go another year before placing orders of any moment.

No doubt some influence has been exerted upon the iron industry, as upon all industries, by the emphasis economic and financial writers have been putting for months upon the growing probability of a reaction from the high level of prices for the necessities of life. As each new year has been added to the period of high prices, the expectation of a curtailment of consumption by the ultimate buyer, the individual, has naturally increased. The accenting of this rise in commodity prices by the greatly enlarged output of gold and the consequent cheapening of the standard of value has set in motion forces that will tend to counteract the dangers of overextension. The danger of believing that because a certain advance has been achieved and held, the advance will continue to an equal extent beyond the level attained has proved repeatedly to be a very real one in the stock market. Influences now exerted upon that market to prevent the disaster which may easily come from overspeculation will be helpful also to the iron trade and industry generally in preventing a runaway market.

Other conserving factors exist. The differences between the Administration at Washington and the railroads as to the extent to which Federal supervision of rates should be exercised are well understood to contain the possibilities of a check upon railroad expenditures for extensions. Not immediately of great import, yet of increasing significance, is the movement for municipal or State ownership of various forms of public service now controlled by corporations. The inevitable encouragement to new demands by labor given by prosperity is not to be overlooked. Unionism already shows signs of a desire to marshal its forces in an attempt to stem the tide of popular intolerance of the closed shop that has been rising strongly in the past two years.

The iron trade, too, is adding not a little to the restraints alluded to above that grow out of conditions apart from the industry itself. The decision of important steel interests last week not to attempt at present to make advances in certain finished lines is significant. There are indications also that in coke and ore prices advances will not be permitted to get beyond bounds. Thus far all prices have held quite within the limits reached in the booms of 1899 and 1902, as will appear from the following table, in which the second and third columns give, respectively, the highest monthly average prices in 1902 and 1899:

Iron and Steel Prices in 1905, 1902 *and* 1899.

	Oct. 18, 1905.	Highest mo. av., 1902.	Highest mc. av., 1899.
Bessemer pig iron, Pittsburgh	$16.60	$22.25	$25.00
Northern No. 2 foundry, Chicago	17.50	27.15	24.50
Southern No. 2 foundry, Cincinnati	15.25	26.00	20.75
Bessemer billets, Pittsburgh	26.00	35.20	39.00
Tank plates, Pittsburgh	1.60c.	1.75c.	2.85c.
Beams, Pittsburgh	1.70c.	2.35c.	2.25c.
Steel bars, Pittsburgh	1.50c.	1.60c.	2.40c.

Pig iron in particular made sensational advances in 1899 and 1902. While indications appear that the present movement may carry iron higher than the quotations of to-day, there is proof of the part the additions to capacity in the past year or more have played in the fact that with all the increased pig iron consumption brought out in 1905 present prices are not as high in some markets as those at the opening of the year and no higher in others. If buyers refrain from bidding against each other for metal for more distant deliveries, which they are not entirely sure they will need when the time comes, much can be done toward holding things in check. A healthy fear of the reactions that follow booms cannot be too constantly before the minds of producers and consumers alike.

The Modern Apprentice System.

The imperative necessity of renewing the apprentice system on a general and comprehensive scale has become apparent to every employer who is dependent on skilled mechanics for his working force. The fact has been brought home of late, in a manner that means dollars out of pocket, that something must be done to provide a great body of high class workmen to meet the enormously increased demand for their services. Apparently the only possible means of accomplishing this end is a general return to the apprentice system, comprising a complete period of training of young men of the best available class, who shall bind themselves to remain with their employers until the end of an agreed term, during which they shall be given the necessary work and instruction to make them competent journeymen. In certain instances, where specialists are required in the establishment, they must be educated to become more than ordinary journeymen, a substantial basis of engineering being included by means of classes under competent instructors. The general subject of the apprentice system was one of the most absorbing which came up for discussion among the members of the National Machine Tool Association at their meeting last week. Employers of the same city are getting together in several instances in establishing a uniform system in order to place the shops on a par in the attractiveness of their apprentice courses. The Cincinnati machine tool builders have agreed upon a system, it is understood. In Worcester new apprentice courses are being established, following along the lines of a system already existing in some shops of that city.

There appears to be a variance of opinion as to which is the better method of safeguarding the employer against the desertion of the apprentice before the expiration of his contract term. One system is to require a cash deposit of from $50 to $100, which shall be forfeited by the apprentice if he breaks his contract. This money is returned to him, plus interest, and oftentimes with a cash bonus, upon the expiration of his time. The other idea is to ask no forfeit, but to offer a bonus at the expiration of the term. The Brown & Sharpe Mfg. Company, Providence, R. I., tried the latter method and abandoned it because the promise of the bonus did not hold the boys. The forfeit has proved much better, especially when it is coupled with a bonus. This is the general opinion of manufacturers who have had much experience with apprentices. If there is nothing to hold them to their contract they are apt to be lured away by the prospect of journeymen's wages, though usually they are paid very well during their apprenticeship, considering that they are students.

The tendency abroad in the great engineering works is to go beyond the usual American custom in training apprentices or student workmen. In this connection a report just issued by the Board of Education, South Kensington, London, is interesting. American employers may find useful suggestions among the instances which the board cites in the hope of stimulating co-operation between employers of labor on the one hand and the managers of technical institutes and evening schools on the other with regard to the instruction of apprentices and employees, the purpose being that both employer and employee may derive full advantage from the expenditure of national and local funds for technical education.

The most common and simplest form of co-operation touched upon in the report is where the employer pays the technical institute or evening school the fees of those employees who take courses approved by the employer as suited to the circumstances of the special industry concerned. A report as to attendance and progress of students thus assisted is generally required, and without this condition the assistance is likely to be ineffective. In some cases the necessary books are provided partly or entirely at the employer's expense. In certain cases students who have passed successfully through a course of study approved by the employer become entitled to an increase in wages which would not otherwise be granted. In several instances the usual annual increase in the rate of wages of an apprentice is made dependent upon regularity of attendance at approved evening classes or on passing certain examinations. Concession in working hours is another form of encouragement. There are numerous examples of students attending evening classes being allowed without loss of pay some reduction in the ordinary hours of work, some firms permitting employees to leave the works on two or three days a week at an hour which enables them to attend evening classes with some degree of comfort in the way of obtaining meals and changing working clothes. Some large engineering firms hold attendance of students at course or classes during the ordinary working hours as a definite portion of their employment, counting as wage earning or apprentice time terms varying from a minimum of two hours a week to as much as six months a year. When the concession is small the number permitted to profit by it is large, and *vice versa*. Thus while an arrangement which sets free for instruction one afternoon a week may prove applicable to a large proportion of the better apprentices with the firm adopting it, only a few even of the best can be expected to give evidence of sufficient promise to justify their being set free for six months' continuous study in a technical school. Still another form of remission is "writing off" a part of the apprenticeship course, thus possibly reducing the apprenticeship of a good student by a year.

A few of the larger of the American engineering works, especially the electrical companies, have adopted systems which include instruction beyond the practical side of shop work. But the tendency has been toward the other extreme, the trouble being that in many manufacturing establishments the apprentice receives altogether too little instruction even in the trade which he has bound himself to learn. The young men are left entirely to the shop foreman, who may not take an interest in this portion of his duties and who may not possess the faculty of imparting his knowledge to his pupils. Consequently it is not at all strange that some shops produce much better mechanics than others. If the boy is expected to produce a maximum of profitable labor regardless of his instruction as an all around mechanic he cannot be expected to turn out to be the same high class journeyman as the apprentice of another shop who receives careful instruction in all branches of his trade. The real fault is in the office as a general thing. If the managing officers insist that the apprentices be given full measure of training, then there will result a constant accession of the best mechanics, thoroughly familiar with the system and product of the works in which they were trained. Some of these will go elsewhere, but more will remain, especially in the sort of shop that fosters its apprentice system.

As to educating apprentices after the custom of British employers, as set forth in the report of the South Kensington Board of Education, probably few American shops will go so far at this time, excepting where highly trained specialists are required in a class between the skilled mechanic and the educated engineer. Yet by giving personal attention to the apprentice system employers can usually find means at hand for securing useful courses of study for the boys without taking away from their earning capacity. In practically every place of any size and in many of the smaller centers of manufacturing ample opportunity is provided, free of cost, for those young men who are ambitious to extend their education. Evening schools usually have courses in mechanical drawing. The Y. M. C. A. conducts classes in mechanical drawing, machine design, steam engineering and kindred subjects. Some of the technical schools have evening courses, usually under the auspices of some association, and various cities have mechanics' associations or other local organizations which have the training of young men as an essential reason for existing. Apprentices may be encouraged to avail themselves of such opportunities, and though in some instances young men may be attracted from the shop to other work, to the drafting room, for instance, yet on the whole the employer should be the material gainer by such an extension of the apprentice course of training.

Laxity in Coke Contracts.

It is a familiar assumption on the part of many foundrymen that on a rising market the furnaces ship on their high priced orders first, and allow the older orders, taken at lower prices, to await their convenience. As a matter of fact, during the boom of 1902, when the furnace companies were under the greatest possible temptation to do this kind of thing, there was very little of it done. The largest seller of merchant iron in the country lived up to its contract obligations with unswerving fidelity, shipping on its orders irrespective of price exactly in the order of their precedence.

Probably there were furnaces here and there that legitimately subjected themselves to this criticism, but they were in a minority not large enough to be respectable. As the merchant pig iron business is done in this country to-day it is conducted on a high standard of business integrity and well doing. It is likely that the furnace companies have more ground to criticise consumers than *vice versa*, for it is a notorious fact that when the boom of 1902 collapsed many consumers who found themselves with unfinished contracts for high priced iron on hand ignored these contracts and refused to give shipping instructions, buying in the meantime low priced iron. However, consumers marked by this yellow stripe were not in the majority, and as a rule it is safe to say that iron bought by a solvent concern "stays bought."

In the coke business of the country quite another condition of affairs prevails, and there is a looseness in regard to contracts that needs correction. This largely comes from the fact that many coke contracts are not for fixed amounts, but seem to be a mere memorandum of the price, the consumer buying for "his requirements" or for four or five cars a day, whatever the quantity may be. When coke takes a jump the man who buys for his requirements suddenly finds he has to use three or four times as much coke as before, and orders shipments at an unprecedented rate. The man who has bought four or five cars a day, instead of getting the maximum quantity as had been the case before, probably finds himself unexpectedly cut off with a good deal less than the minimum. In some parts of the country, as, for example, in West Virginia, the producers have made an arrangement with a selling company. This selling company handles their entire product. It takes an order and distributes it pro rata among the various producers. These producers, however, have no mutually binding contract with the purchaser or with the selling company. If one of the producing companies withdraws from the selling association it takes with it no prior obligations. The remaining companies, in case the market has advanced, are unwilling to assume the additional obligations caused by the withdrawal of the company, and the consumer finds himself short of coke. A case in point is that of a furnace company which four months ago bought ten cars a day of furnace coke. These ten cars were shipped regularly until the market advanced recently, and since that time shipments have been made intermittently, but the average number of cars has not exceeded one-third of the original purchase. The selling company disclaims all responsibility in the matter because some of the producing companies have withdrawn from the agreement. The trouble in this case seems to be that the furnace company was getting more coke than it actually needed and was piling up a surplus, and the coke sellers, finding this out, stated they had no intention of allowing the furnace at their expense to acquire a stock of low priced coke. Of course this has no direct bearing on the contract. The furnace company bought the coke in good faith and it should be shipped. If prices had remained stationary or had gone down the ten cars of coke would have been shipped with unfailing regularity. In this particular case when the furnace company objected it was told that if the contract price was advanced more coke would be shipped; this, too, notwithstanding the alleged car shortage.

This current instance is given as typical of the elasticity of a coke contract, or, rather, of the easy way in which some contracts are interpreted by the sellers. We have no intention of bringing a general indictment against all the coke manufacturers in the United States. Undoubtedly the great bulk of the coke business is done properly, and undoubtedly the majority of coke orders are filled with scrupulous attention to business proprieties. But there are here and there so many loose ends in the coke business that it is very evident reforms could be introduced advantageously.

CORRESPONDENCE.

The Lürmann Cinder Tap.

To the Editor: No doubt the Lürmann cinder tap has been a factor of great importance in the increased make of furnaces to-day, but it is quite incorrect to speak of it as necessary when high blast furnaces are used. In fact pressures up to 10 and 12 pounds per square inch were used at anthracite furnaces in this country years before the cinder tuyere was heard of. This was easily accomplished by covering the fore hearth with heavy cast iron plates (called by the men "the weights"), which were further secured by props against the mantels or other convenient points over the front. This plan was adopted when the Pioneer Furnace at Pottsville was blown in in October, 1839 (*Transactions* American Institute of Mining Engineers, vol. iii, p. 154), but I always understood that it had been used previously in England and was known there to Benjamin Perry, to whose practical skill the good result at Pottsville was largely due.

F. FIRMSTONE.

EASTON, PA., October 24, 1905.

American and Foreign Automobiles.

BY S. D. V. BURR.

Figures compiled by the Appraiser of the Port of New York show that there were 119 automobiles entered during the month of September, as against 72 last year, and from January to September 772 cars were entered at a value of over $3,000,000. During the same period last year there were 435 entries. Almost all of these were of the racing or touring type, very few indeed being designed strictly for business purposes. All were expensive models, and all had to pay a duty of 45 per cent. The importation of a manufactured article to the extent of $3,000,000 in nine months would not, under ordinary circumstances, indicate a business of much magnitude, but when this occurs in a young industry, one that is in the process of development, the reasons may well be sought. The demand is for machines of foreign make, and since this demand has been growing steadily during late years it would appear to indicate that the American automobile is neither so well designed nor so well constructed as its rival.

The only times when the two classes of machines appear together under conditions permitting comparisons to be made are in the road races, one of which took place October 14 on the Long Island course. Contests of this character have been held frequently in Europe for several years, but only two having an international composition have taken place here, the first being that of last year. While a road race demonstrates the power and endurance of the machine, it also brings into evidence the skill, nerve and endurance of the driver. The "personal equation" is thus brought into great prominence, so that it is impossible to judge accurately of the true merit of the machine by timing its passage over the course; the machine may be hopelessly handicapped by being under the control of one lacking in those qualities essential to the make up of every successful chauffeur. In these races it may be taken for granted that every automobile entered is capable of covering the distance at least at the average rate of 60 miles an hour, and can do 70 to 80 where the road is such as to permit these speeds. If, therefore, these speeds are not maintained it means either that the car is lacking in durability or the driver in skill.

It is claimed—always by those who have never felt their pulse quicken when holding the steering wheel of a high speed machine—that these races prove nothing as to the merits of different makes of cars and are of no value as aids toward perfecting the automobile. This cannot be accepted as true in either sense. The manufacture of racing machines pure and simple comprises but a very small fraction of the business, the building of cars for touring and pleasure being of much more importance. But there is no branch of the industry requiring more skill in designing, in selecting the materials and in workmanship. The work demanded of the racer is incomparably more severe than that expected of any other machine and the wonder is that it endures the strain at all. A road that may be perfectly smooth for a speed of 10 miles an hour may be tremendously rough at a speed of 60 miles; and yet the racing machine is expected to travel this road with perfect safety, to withstand the strain of skidding around the corners and, in fact, to keep in serviceable shape under all conditions except those of collision.

It is true that a successful racing automobile would prove equally successful as a touring car or as a traction engine. It has all the requisite qualities—strength, durability and endurance. It therefore seems to be apparent that every improvement made in the racer is bound to result to the advantage of all the other types.

But the racing machine has its weak points and these are sure to be brought to light during the trial. Nineteen automobiles entered the race of the 14th. Of these four were German and there were five each from France, Italy and the United States. The accidents to the machinery were about equally divided between the four countries and except in two cases were dissimilar. Each had tire troubles, two had broken chains and others had cracked cylinders and general difficulty with the apparatus. Considering the whole performance, the American machines did not show up as well as their competitors. The order at the finish was as follows: First, French, "Darracq"; second, French, "Panhard"; third, American, "Locomobile," and, fourth, Italian, "Fiat." The machines are not widely separated in design—that is, no one machine can be said to possess advantages that place it far in advance of its neighbors. This being the case, the difference in performance must be due either to a better selection of materials or to superior workmanship. We say "better selection of materials" and not "selection of better materials," for it is presumed that every manufacturer uses the material he considers best adapted to the service without regard to cost. It would be the extreme of foolishness to skimp in the building of a machine returning the profit that the racing automobile does. The advantage appears to arise from superior judgment in combination with the highest mechanical skill. Again, the French and German makers have had many years' experience in the building of racing automobiles, while our own makers have paid comparatively little attention to that branch of the business. In fact, there are less than half a dozen American builders who have devoted any time at all to the racing problem. Producers of automobiles understand perfectly that a reputation as the maker of a winning racing car means a reputation all along the line. It is a sound business proposition. Vastly more brains and experience are required for the production of an 80-mile racer than for the making of a 20-mile runabout, and this fact is known and appreciated by those who buy the machines, whether for business, pleasure or sport. And yet on this side of the water we have largely neglected this part of the manufacture and, as our import statistics prove, have permitted the foreigner to come here and take the profits home with him.

The Broderick & Bascom Rope Company, St. Louis, Mo., has been awarded gold medals at the Lewis and Clark Centennial Exposition, Portland, Ore., for exhibits in seven different groups, comprising wire ropes, power transmission cables, aerial cables, &c.; also a gold medal for originality of design and practical demonstration of the entire exhibit. The company's Power steel rope, which is used extensively in the lumber camps of the Northwest, was the feature of its exhibits.

PERSONAL.

Carl Horix has resigned as general sales agent of the Curtis & Co. Mfg. Company, St. Louis, Mo., to engage in business in Cleveland, Ohio. Mr. Horix before going to St. Louis was for many years general manager of the George B. Sennett Company, Youngstown, Ohio.

E. W. Oglebay of the iron ore selling and mining firm of Oglebay, Norton & Co., Cleveland, Ohio, is now a director of the Republic Iron & Steel Company, having been elected to succeed the late Peter L. Kimberly. Mr. Oglebay was also re-elected director of the Colorado Fuel & Iron Company at its recent annual meeting.

L. J. Forget, president of the Montreal Street Railway, has been elected first vice-president of the Dominion Iron & Steel Company, succeeding Frederick Nicholls, resigned.

Harry H. Hornsby has succeeded Alexander Henderson as sales manager of the conduit department of the Sprague Electric Company, New York. He has had many years' experience in the electric business both in the East and West. While chief inspector of the Department of Electricity in the city of Chicago he did much to improve the standard of electrical protection. Mr. Hornsby has recently recovered from a very severe illness.

The Falls Hollow Stay Bolt Company, Cuyahoga Falls, Ohio, has engaged F. C. Lippert, 5954a Bartmer avenue, St. Louis, Mo., as traveling representative for Western territory. Mr. Lippert is a mechanical engineer, graduate of Cornell University, who has made the subject of stay bolt iron a careful study.

F. T. De Long has resigned the position of general manager of the Buhl Malleable Company, Detroit, Mich., to become sales manager of the Chicago Railway Equipment Company.

Joseph Dunn has been appointed superintendent of the Birmingham, Ala., blast furnaces of the Sloss-Sheffield Steel & Iron Company, succeeding J. W. McCune, who recently took charge of the Woodward Iron Company's furnaces at Woodward, Ala.

George G. Blackwell, chairman of George G. Blackwell, Sons & Co., Ltd., mineral and metal merchants, Liverpool, England, is now in this country, at Hotel Manhattan, New York. After Thursday of this week his address will be Hotel Walton, Philadelphia.

H. M. Klingenfeld, manager of the advertising department of the National Electric Company, Milwaukee, Wis., has resigned, and on November 1 will enter the advertising department of the David Williams Company at its Chicago office.

Delmer W. Call has been chosen fourth vice-president of the American Steel Foundries. Mr. Call has resigned the position he has held for many years with the National Malleable Castings Company to accept the new appointment.

R. W. Anderson has resigned as assistant general superintendent of the Carbon Steel Company, Pittsburgh, and has been made general manager of the Pittsburgh Fireproofing Company.

Orlando Miller, purchasing agent of the Westinghouse Air Brake Company, Pittsburgh, has been granted a six months' leave of absence and will spend the winter in California. He expects to resume his duties about April 1 next.

It is reported that the presidency of the Republic Iron & Steel Company was offered recently to D. A. Merriman of Chicago, assistant sales agent of the American Steel & Wire Company, but was declined.

H. B. Sturtevant, formerly manager of the Pioneer mine on the Vermillion iron range, Minnesota, has been appointed superintendent of the Lincoln Consolidated Mining Company, Tucson, Ariz. Mr. Sturtevant will also act as consulting and general mining engineer, with headquarters at Tucson.

The New Hamburg-American Liner Amerika.

One of the largest and in many respects the most remarkable Transatlantic passenger steamship ever built is the Amerika, which recently completed its maiden trip. It is 687 feet long, 74 feet 6 inches wide, 53 feet deep and has a displacement of 42,000 tons, which is the greatest displacement of any vessel in the world. The gross tonnage is about 23,000 tons and the cargo capacity is 16,000 tons. It will ply between New York and Hamburg.

Many unique features distinguish the Amerika, the most notable of which are a restaurant where meals are served *à la carte* at all hours and an electric passenger elevator, the first ever installed in a passenger ship. Elaborate provisions have been made for the comfort and convenience of the passengers in the equipment and appointments, which include a Marconi wireless telegraph apparatus, stateroom telephone service, a nursery for children, trained nurses for the sick, hydropathic and electric baths and a gymnasium containing all the latest appliances.

The vessel has eight steel decks and an unusual amount of promenade space. The restaurant is located amidship, on the sixth deck, and will seat about 120 persons. The total passenger accommodation is 3057, which with the crew of 520 makes the total number which it is possible to carry nearly 3600. In the classes there is an extra division, known as the "intermediate," which comes between the second class and steerage divisions. In the first-class division there are accommodations for 507, in the second class 284 and in the third or "intermediate" class 230. The steerage capacity is 2036. It is to be commended that the arrangements for the steerage passengers are far better than are ordinarily provided. They are never berthed below the lower deck and at certain times of the day they will have the privilege of using one of the upper decks aft.

In the belief that the sentiment of the traveling public is beginning to react against high speed at the expense of comfort, the company has made the latter its first consideration, and while the vessel is capable of a very fair speed it is not to be classed among the ocean "flyers." It will make the crossing to England and France in about seven and a half days and to Hamburg in about nine days. To avoid vibration common in the fast liners the 15,000 horse-power quadruple expansion engines which drive the twin screws are constructed on the "balanced" principle developed by the builders, Harland & Wolff. The great weight of the ship is also calculated to decrease the motion and temper the tendency to seasickness. Ventilation and safety devices have received particular attention. In the ventilation by a specially designed automatic system drafts have been avoided. As a guard against accidents in foggy or rough weather there is a system of communicating through the water between the ship and the shore. This system, perfected by the Submarine Signal Company, Boston, Mass., enables a navigator by bell signals to locate lightships and lighthouses regardless of the weather conditions. The water tight bulkheads, of which there are 12, are operated by the Stone-Lloyd system. The pressing of a button on the bridge causes the closing of the water tight doors of every compartment through the agency of hydraulic pressure, and but a few seconds are required to make every compartment water tight and the ship practically unsinkable. As a precaution against fire the latest extinguishing system has been placed on board, by which a fire breaking out in a compartment is smothered by forcing in sulphuric acid gas.

The decorations and furnishings of the regular dining rooms, smoking rooms, libraries, writing rooms and principal staterooms and cabins are as luxurious as will be found in many of the best hotels. The berths throughout the cabins on the upper deck are built on the Pullman car system and can be folded up during the day, and the upper berths have been done away with. The toilet fixtures are unusually excellent and in contrast to the small inconvenient appliances usually found.

The Amerika was built by Harland & Wolff, and was launched at Belfast, Ireland, on the 20th of last April. It is the first of a series of new vessels, the building of which was authorized by the Hamburg-American Steamship Company about two years ago. A sister ship, the Kaiserin Auguste Victoria, is now nearing completion at the yards of the Vulcan Shipbuilding Works at Stettin, Germany, and will be ready for service in the spring of 1906. In a general way this vessel will be of the same type as the Amerika, but will have greater dimensions, making it the largest ship afloat. Its length will be 700 feet, width 77 feet, depth 54 feet. Gross tonnage, 25,000 tons and displacement 42,500 tons.

The American Shipbuilding Company.

The sixth annual report of this company, operating plants exclusively on the Great Lakes, gives the following financial statement for the fiscal year ending June 30, 1905:

Resources.		
Plants and property		$16,397,027.36
Additions and improvements to plants		47,343.54
Material on hand (market value)		532,829.04
Accounts and bills receivable		2,708,600.06
Due us on construction contracts		1,400,028.75
Cash		656,994.30
Total		$21,742,823.05
Liabilities.		
Capital stock, preferred		$7,900,000.00
Capital stock, common		7,600,000.00
Accounts and bills payable		1,617,698.81
Reserve for maintenance		200,000.00
Reserve for fire insurance		106,331.59
Earnings	$1,549,450.61	
Less:		
Dividends, preferred	$553,000.00	
Depreciation and maintenance	315,408.85	
Rebuilding docks, &c.	40,691.86	
	909,100.71	
Balance	$640,349.90	
Balance as of June 30, 1904	3,678,442.75	
Working capital, June 30, 1905		4,318,792.65
Total		$21,742,823.05

President James C. Wallace makes the following statement to the stockholders:

"The construction during the last year has been composed mostly of ships that will range in carrying capacity from 8500 to 11,500 tons, and the tendency seems to be growing to increase the size of the vessels. Contracts recently closed by the company show that there will be at least two new vessels turned out during the coming year of approximately 13,000 tons capacity each. The company has now under contract 21 steamers, all for delivery next spring. In addition to the new tonnage contracted during the past year the company has cut apart and lengthened seven steamers 72 feet each; and from present inquiry it looks as if there would be a large amount of this class of work done during the coming winter.

"It seems to be thoroughly demonstrated in the minds of nearly all vessel owners that the larger size vessels and type of construction now being built are inevitable, and that a large number of the old vessels will gradually be remodeled. Necessarily, however, to provide for the larger construction, enlargement of dry docks and additional modern machinery is essential and must be provided to keep the company's plants up to the highest efficiency."

During the fiscal year ended June 30, 1905, the company built 20 vessels, with a total carrying capacity of 164,400 net tons, based on 19 feet draft.

Manufacturers' Association of Pittsburgh.—The annual meeting of this organization was held at its offices in the Lewis Block, Pittsburgh, last week. New officers were chosen as follows: H. C. Shaw, A. Garrison Foundry Company, president; E. W. Heyl, Heyl & Patterson, vice-president; Stewart Johnson, Pittsburgh Steel Foundry, treasurer, and John A. McLaren, Phillips & McLaren, and C. J. Mesta, Mesta Machine Company, councilors. William H. McFadden, the retiring president, and G. E. Brush, retiring councilor, were tendered a vote of thanks for the able manner in which they discharged the duties of their offices during the year. The reports of officers for the past year were presented and showed the organization to be in excellent shape.

The American Gas Light Association.

The American Gas Light Association met in Milwaukee, Wis., October 18-20 for its thirty-third annual convention. The attendance reached nearly 400 and was in excess of expectation. The business of the association, including the election of officers, was transacted on the opening day, the other days being devoted to the reading and discussion of technical papers and visits to points of interest.

The business sessions of the convention were held at the Masonic Temple and presided over by President Edward G. Cowdery, St. Louis, president and manager of the Laclede Gas Light Company. In his annual address President Cowdery advocated taking the public into the confidence of the companies to a greater extent than had heretofore been the custom. He argued for publicity in public service corporations, but opposed the creation of State commissions as harmful not only to the gas producer but to the consumer. Particularly unsatisfactory are State commissions because of the lack of uniformity in the different States. He also opposed municipal ownership and urged that the public be given the fullest possible information as to the operation of gas companies and the desirability of their remaining in the control of individuals and corporations rather than passing into the hands of municipal authorities. The first morning session closed with the reading of a paper by Vice-President Alfred E. Forstall, New York, on "Methods of Charging for Gas."

At the afternoon session officers were elected as follows: President, Charles F. Prichard, Lynn, Mass.; first vice-president, Charles R. Faben, Jr., Toledo, Ohio; second vice-president, Alfred E. Forstall, New York; third vice-president, Arthur G. Glasgow, London, Eng.; secretary-treasurer, George G. Ramsdell, New York; members of the council: Fred H. Shelton, Philadelphia; Thaddeus R. Beal, Poughkeepsie, N. Y.; George McLean, Dubuque, Iowa; Henry L. Rice, Aurora, Ill.

The election of officers was followed by the awarding of the Beal medal for the most interesting and instructive paper presented to the convention. The honor was accorded to B. H. Spangenberg, Philadelphia, whose subject a year ago at the Washington convention was "Consumers' Meters."

The most important business of the convention was that looking to a consolidation of the American Gas Light Association, the Western Gas Association and the Ohio Gas Light Association, all three of which have a large membership and have been holding annual conventions, which have been largely attended by the same people. The report of a committee appointed a year ago was presented recommending that the three organizations be united under the name of the American Gas Institute and was unanimously adopted. Before the consolidation can be effected the other organizations will have to take action, but it was the general opinion of the members present from the Western and Ohio associations that the action would be heartily concurred in. This will make one strong representative association of all gas plant owners, managers and engineers.

Papers read and discussed at the convention were "Condensation," by James S. McIlhenny, Washington, D. C.; "Taxation of Gas Companies," by George McLean, Dubuque, Iowa; "High Pressure Distribution to Date," by H. L. Rice, Aurora, Ill.; "Methods of Charging for Gas," by Alfred E. Forstall, New York; "Improvements to Date in Consumers' Meters," by Charles H. Dickey, Baltimore, Md.; "Municipal Ownership," by B. F. Lyons, St. Louis, Mo.; "Relativity of Economic Institutions," by Prof. Balthaser M. Heyer, University of Wisconsin.

The social features of the convention were elaborately planned and carried out by a committee headed by Col. Edward G. Pratt, manager of the Milwaukee Gas Light Company. On Friday trolley trips were taken, many of the delegates availing themselves of the opportunity to take a special trip to the new plant of the Milwaukee Gas Light Company and the Allis-Chalmers Works at West Allis.

Incidental to the convention a number of trade exhibits were made at the hotels and the office of the gas company by stove, mantel and gas fixture manufacturers, among which were the following: Ramsdell Inverted Gas Lamp Company, New York; Stamford Gas Stove Company, Stamford, Conn.; Welsbach Company, Gloucester, N. J.; Humphrey Company, gas stoves, Kalamazoo, Mich.; Albany Foundry Company, Albany, N. Y.; Michigan Stove Company, Detroit, Mich.; Veeder Mfg. Company, Hartford, Conn.; Burroughs Adding Machine Company, Detroit, Mich.; H. Mueller Mfg. Company, Decatur, Ill.; Brand Stove Company, Milwaukee, Wis.; Central Foundry Company, Buffalo, N. Y.; Cleveland Street Lighting Company, Cleveland, Ohio; W. M. Crane Company, New York; Dean & Co., Philadelphia; Philip Gross Hardware Company, Milwaukee, Wis.; Frank D. Moses, water heaters, Trenton, N. J.; New York Improved Meter Company, New York.

OBITUARY.

CARL SPAETER.

The death is announced of one of the leaders of the German iron trade, Carl Spaeter, of Coblenz. Born at Stadtsulza in 1835, he became a partner in the firm of Ludwig Wirth in 1860, and in 1875 purchased the interests of his partner's family. He acquired extensive holdings in the Minette district of Lorraine in 1871 soon after its cession to Germany, erected furnaces at Rombach in 1888 and a steel plant in 1900, which has since developed into the great works at that point. He was prominently identified with the magnesite industry also, having acquired control of the magnesite deposit at Veitsch, Styria, in 1881. This plant has become the largest of its kind in the world. He retired from active business in 1903.

EDWARD BROWN, inventor and manufacturer of scientific instruments, died October 22, at his home in Philadelphia, aged 71 years. He was born in Earith, England, and came to this country when 25 years old. He had been established in business at 311 Walnut street, Philadelphia, since 1860. He is survived by a widow, a son and two daughters.

WILLIAM W. HUNTER, secretary and treasurer of the American Belting Company, Youngstown, Ohio, died from pneumonia October 22.

The Crucible Steel Company of America.—The annual meeting of this company was held last week, the most important action taken being the rescinding of the authority to issue $7,000,000 in bonds. This action followed the statement by Chairman W. G. Park that the necessity for an issue of bonds had ceased to exist and the Board of Directors recommended the rescinding of the authorization. This leaves the company not only free from bonds, but free from any issue in the future unless the stockholders again grant the authority. In this respect it is almost unique among the newer industrial corporations, nearly all of which were organized without bonds, but were subsequently compelled to raise additional capital by this means. The proposition to issue quarterly statements of earnings and expenses, similar to those issued by the United States Steel Corporation, did not come before the meeting. It was reported that such a step was already under consideration by the board. The retiring directors were re-elected and the meeting was entirely harmonious.

Baker & Co., Incorporated, refiners and manufacturers of platinum, gold and silver, Newark, N. J., and New York City, have been awarded a gold medal for the excellence and variety of their exhibit at the Lewis and Clark Centennial Exhibition, Portland Ore. The exhibit attracted the special attention of a large number of visiting miners and metallurgists, who in recent years have been devoting greater care to the recovery of the platinum known to exist in the alluvial deposits along the Pacific Coast. This exhibit was comprehensive in its character, including numerous samples of crude platinum ore, the salts and solutions of the metal, and various forms of platinum ware, such as are used daily in the arts and industries.

NEWS OF THE WORKS.

Iron and Steel.

The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, is in receipt of an order for a large quantity of hollow staybolt bars from the American Railroad Company, San Juan, Porto Rico, and of another large order for shipment to Japan.

Repairs are now being made to the Bristol Rolling Mill, Bristol, Pa., and it is expected that the plant will resume operation in a month or six weeks.

The Norwalk Steel & Iron Company, Norwalk, Ohio, manufacturer of agricultural implement, safe and vault steel, high grade tool steel and forgings, has completed a second 20-ton Torsell open hearth furnace and will place it in operation early in November. The steel capacity of the plant will be doubled by the operation of this furnace. Owing to the great demand for this company's product in the past two years this addition was made necessary, only one furnace having been installed when the plant was built.

The National Steel & Wire Company, New York, is negotiating for the location of a new steel wire plant at Los Angeles, Cal., which it is reported will cost about $2,000,000. H. E. Huntington, chairman of the Executive Committee of the company, is now at Los Angeles superintending the details.

General Machinery.

The R. D. Nuttall Company, Pittsburgh, Pa., manufacturer of cut or planed gears of every description, has recently installed one of the largest gear cutting machines for cutting gears by the milling process ever built. This machine will allow the concern to cut spur gears up to 20 feet in diameter, 3 feet face and up to a 7-inch P tooth. The company is operating every department of its plant in the manufacture of cut and plain gears to full capacity and has a very large amount of special and general work on hand.

The Bury Compressor Company, Erie, Pa., will have one of its air compressors on exhibition at the Paris Automobile Show, which takes place early in December. This machine will furnish air to operate the numerous American appliances sold in Europe by Fenwick Freres & Co.

The American Hoist & Derrick Company, St. Paul, Minn., is erecting a one-story derrick shop, 40 x 185 feet, and a brass foundry and chipping room, 60 x 90 feet. All the material and machinery has been purchased for these buildings.

The Strong & Northway Mfg. Company, Chicago, Ill., manufacturer and dealer in mill machinery and supplies, will build a $50,000 machine shop. The company does not expect to purchase any new equipment.

Cook & Baker, Bowling Green, Ohio, have leased the new machine and boiler shop erected at Toledo, Ohio, by Chesbrough Brothers of that city. Cook & Baker will install their own machinery and expect to be in operation about January 1.

The Weston-Mott Company, Utica, N. Y., manufacturer of steel wire wheels, rims and channels, axles, forgings and fifth wheels, will move to Flint, Mich., where a new factory, having a floor space of about 70,000 square feet, will be erected. All machinery and power equipment will be removed from the Utica plant. Additional equipment which will be necessary for the new plant has not been definitely determined upon.

The Helwig Mfg. Company, St. Paul, Minn., has recently placed on the market a larger size pneumatic staybolt clipper to cut 1½-inch staybolts and less. In all other respects it has the same desirable features as the company's smaller pneumatic clipper, which cuts up to 1¼-inch bolts—that is, having small inserted knives readily replaced at little cost, cutting off the bolts of any desired length straight and smooth ready for riveting.

The Turner Tanning Machinery Company, Boston, Mass., has decided not to enlarge the shops of the Vaughn-Rood Company at Peabody, Mass., recently acquired in the consolidation of the two companies. An addition was contemplated, but the company has decided to operate night and day in increasing output. The Turner Company's machinery has been moved from Boston to Peabody.

The George L. Squier Mfg. Company, Buffalo, N. Y., builder of sugar and plantation machinery, has received an order for three carloads of apparatus for a sugar refinery in Kobe, Japan. The order is one of importance, including triple effects, special pumps, &c., used in the refining of sugar, and this installation marks a distinct advance in the use of American machinery for sugar houses in Japan.

The C. B. Ford Company, Richmond, Va., recently incorporated, has succeeded to the business of C. B. Ford, engineer and machinist, who leased the machine shop from Wm. R. Trigg Company in 1903, from which time he has operated the plant, carrying on a general repair and manufacturing business. The new company will repair locomotives and manufacture locomotive stock parts and special machinery, including the Nunnaly quartering lever, Magic molding machine for making concrete building blocks, Whitlock reciprocating sand pump and gasoline engines for marine and stationary purposes. The company has recently completed a contract with the War Department for a large amount of shot and shell and several steam shovels, and has under way the machinery for a new dipper dredge for use in dredging gold bearing gravel. The officers of the company are A. St. Claire Butler, L. H. Wyland and C. B. Ford.

Louis Lorenz has moved his machine shop from 1247 De Kalb avenue, Brooklyn, to 129 East Eighteenth street, New York.

The Mullen Mfg. Company, engineer and machinist, Baltimore, Md., will erect an addition 20 x 83 feet to its plant at 418 South Charles street.

The Pence-Stewart Mfg. Company, successor to the Gratis Iron Works, has moved from Gratis, Ohio, to its new plant at West Alexandria, Ohio.

The Dake Engine Company, Grand Haven, Mich., has been purchased by four local capitalists, who have been elected to the following offices: Thomas Johnston, president; Archie Campbell, vice-president; J. P. Armstead, secretary and general manager, and J. F. Johnston, treasurer. The Archibald Campbell Foundry Company has been consolidated with the Dake Engine Company and improvements to the plant will be made. The company is doing a good business in the manufacture of crab hoists, swinging gears, pilot house steam steering gears and compressed air motors.

The Richmond Forging Company, Richmond, Va., which was recently incorporated, has let contract for its new plant, which will be 40 x 200 feet, of structural steel.

The Moffatt Machinery Mfg. Company, Charlotte, N. C., was incorporated in May for the manufacture of heating pumps and elevators and doing a general line of repair work. It has also a number of patented devices which will be put upon the market. The company purchased one and a half acres of land, which will be connected by track with the Southern Railroad and upon which it is erecting works, embracing three shops, all adjoining. The machine shop is 140 x 60 feet; foundry, 100 x 50 feet, and wood working shop, 100 x 60 feet. All will be fitted up with the most modern machinery, which has already been purchased, and it is expected the plant will begin operations by November 10 The president of the company is W. E. Moffatt; vice-president, Z. V. Kendrick, and secretary and treasurer, J. G. Baird.

Power Plant Equipment.

The Olds Gas Engine Company, Lansing, Mich., received the contract for two 60 horse-power gas engines and producer plant and the Northern Electric Company, Madison, Wis., for two 40-kw. generators from the Heyman Company, which conducts a department store at Grand Rapids, Mich. The equipment will be used for the company's lighting plant.

Contracts were let by the city of Carthage, Mo., for machinery for increasing its municipal electric light plant as follows: Two 150-kw. dynamos, Bullock Electric Mfg. Company, Cincinnati, Ohio; steam driven condenser, 500 horse-power, Robert B. Orr Engine Company, Kansas City, Mo.; eccentrics for operating exhaust valves for Corliss engines, Allis-Chalmers Company, Milwaukee. The dynamos take the place of the 90-kw. dynamos now in use.

The Bass Foundry & Machine Works, Fort Wayne, Ind., was awarded contract by the city of Garrett, Ind., for furnishing two 200 horse-power horizontal tubular boilers.

The Allis-Chalmers Company, Milwaukee, has been awarded the contract for the pumps, electric motors and other machinery for the water works to be erected by the village of West Allis. Price, $8223.

Electricity has practically superseded steam as a motive power in modern buildings and the electric generator to-day is as much a part of the up to date power plant as is the steam engine. In the Hotel Gotham, Fifth avenue and Fifty-fifth street, New York, recently opened, there are four generating units consisting of one 75-kw. and three 160-kw. Sprague electric generators direct connected to Ball engines. These generators supply current for all purposes of power and light in the hotel.

The Public Lighting Commission of Detroit, Mich., which, it will be remembered, established early in the 90's the first municipal lighting plant in America of high grade and considerable size, has just placed an order with the Westinghouse Machine Company, East Pittsburgh, Pa., for a 2000-kw. turbine type generating unit, following this order shortly afterward with a second order for a machine of the same size. The company has also received within the last few weeks many orders for gas engines ranging from 10 to 1000 horse-power. No less than 36 gas engines are covered by these orders, aggregating 6647 horse-power. One of the most recent and significant orders was received from the Rockland Electric Company, Hillburn, N. Y., for two 500 horse-power double acting horizontal tandem gas engines. Another order worthy of special mention is from the Union Traction Company, Independence, Kan., for one 500 horse-power horizontal tandem gas engine and one 1000 horse-power horizontal twin tandem gas engine, both for alternating current generator driving in parallel. Other orders were received from fourteen different parties covering territory from New Jersey to Kansas.

The International Power Company, 71 Broadway, New York, has taken over the business of the Amoskeag Fire Engine Com-

pany, Manchester, N. H., and Dr. Arthur Burt has resigned his position with the La France Fire Engine Company and will assume the management of the fire engine business of the International Power Company, with headquarters at Boston, Mass. The International Power Company is not ready to announce as yet whether there will be any alterations to its manufacturing plants as a result of the change.

Foundries.

The S. Obermayer Company, through its New York representative, secured the contract for a complete equipment for the brass foundry to be installed for the Fire Department of New York.

The Moline Foundry Company, Moline, Ill., has incorporated, with a capital stock of $6000, to operate a foundry and machine shop. The incorporators are J. R. Weeks, P. J. Kail and S. S. Hoffman.

The Glenn Mfg. Company, manufacturer of soil pipe and fittings, plumbers' and steam fitters' supplies, St. Charles, Ill., is enlarging its foundry capacity and early next spring will build another molding room, 80 x 180 feet, one story high. The company has its own water power up to 300 horse-power. A 25 or 30 ton cupola will be required.

J. B. Fate & Co., Plymouth, Ohio, are erecting a foundry, 70 x 120 feet. A crane has been purchased from the Cleveland Crane & Car Company and an elevator from Toledo. The J. D. Smith Foundry & Supply Company, Cleveland, is figuring on furnishing a cupola.

The Schock Machine Company, founder, has been incorporated at South Bend, Ind., with $20,000 capital stock. The directors are George W., Lura R. and Olive Shock.

The Massachusetts Steel Casting Company, Everett, Mass., after having rebuilt one of its 15-ton open hearth furnaces, put it in operation on October 21. The company is now using its Tropenas converter in connection with the open hearth furnace and is manufacturing light as well as heavy castings.

Bridges and Buildings.

The Pan-American Bridge Company, New Castle, Ind., has been awarded contract by the Indiana Union Traction Company for the erection at Jonesboro, Ind., of a viaduct 875 feet in length, consisting of eleven 45-foot and thirteen 30-foot plate girder spans resting on steel towers, approximately 32 feet in hight.

William B. Scaife & Sons Company, Pittsburgh, Pa., has been awarded contract by the Washington Coal & Coke Company for the structural steel work required for its large power plant at Star Junction, Pa.

Fires.

One of the paper mills of the Lydall & Foulds Paper Company, Manchester, Conn., was recently burned, with a loss of $15,000.

The silk thread mill of D. E. Adams, Athol, Mass., was burned October 16, with a loss of $40,000. The power house was destroyed.

The lubricating plant of the Atlantic Refining Company, Philadelphia, Pa., was destroyed by fire on Saturday. The loss is placed at $50,000.

The chain works of J. B. Carr & Co., Troy, N. Y., was seriously damaged by fire about a week ago.

The Oregon Foundry Company's plant at Portland, Ore., was recently destroyed by fire. The loss is placed at $40,000.

Hardware.

The Portland Cordage Company, Portland, Ore., has recently installed a quantity of new machinery which will considerably increase the capacity of its works. It has also lately completed a modern plant at Seattle, Wash., with 1600-foot rope walk for the manufacture of all sizes of large cordage, including ships' hawsers up to 20-inch circumference. The company states that it is now prepared to handle advantageously any orders for goods in this line.

The Star Enameling & Stamping Company will remove its plant from Washington avenue, Allegheny, to McKees Rocks, Pittsburgh, at which point large new works are being erected.

The Clarke & Baker Company has purchased the stock of the Tucker File & Cabinet Company and are erecting at Ilion, N. Y., a brick factory 230 x 66 feet, three stories and basement, with additional office, boiler and dry kiln buildings. When the plant is ready for occupancy the Tucker File & Cabinet Company will be succeeded by the Clarke & Baker Company and the business conducted under the latter name, and will be devoted to the manufacture of office, bank and library equipment. The power of the new factory is to be electrical.

The Indiana Edge Tool Company, Gas City, Ind., manufacturer of edge tools, is not making axes at the present time. The company, however, contemplates starting the axe department about the first of the year.

The A. Schoenhut Company, toy manufacturer, is having plans prepared for an addition to its plant at Boston avenue and Sepviva streets, Philadelphia, Pa. The new building will be 51 x 59 feet, five stories high and of fire proof construction throughout. No machinery, it is said, will be purchased for the new building, which is to be erected for the purpose of increasing general business facilities.

The Ohio Lock Nut & Bolt Company, Lancaster, Ohio, has under way the erection of a factory for the manufacture of its patent lock bolts. A 50 horse-power engine and machinery for the manufacture of 15,000 track bolts per day will be installed at the start and this equipment will be augmented by other machinery as demanded. It is expected to have the plant in operation in sixty days.

The Johns & Thompson Company, an old established saddlery business, Fort Wayne, Ind., has incorporated with a capital stock of $30,000 and organized with the following officers: A. L. Johns, president; C. S. Bash, vice-president, and J. A. Thompson, secretary-treasurer.

The Eagle Lock Company, Terryville, Conn., has decided to make its new factory building a four-story instead of a two-story structure, as originally planned. The building will be 44 x 200 feet, with a tower 20 feet square.

The Gurney Refrigerator Company, Fond du Lac, Wis., has equipped its factory with a new 500 horse-power engine, having outgrown its former equipment.

The Crunden-Martin Woodenware Company, St. Louis, Mo., is increasing the output of the Bowman Stamping Company, which it owns, and will enlarge the line of manufacture, going into the tinware business, both pieced and stamped, as well as some other items. A five-story stamping building, 44 x 104 feet, and a one-story galvanizing building, 40 x 70 feet, are being erected for the expansion in these lines. These buildings are being constructed on a block 377 x 240 feet in dimensions, which is owned by the Crunden-Martin Company and on which it is erecting for its own use a six-story factory. Two railroad tracks enter the property, affording facilities for switching 15 cars at once. The Crunden-Martin Company also owns in addition to the Bowman Stamping Company a paper bag, envelope and tablet factory, located in the same block. A central plant operated by the company furnishes power, heat and light.

The Niagara Bedstead Company, 24-32 Churchill street, Buffalo, N. Y., has purchased the stock, plant and business of the Empire Metallic Bedstead Company and will continue the manufacture of the former line of brass and iron beds, adding thereto from time to time such styles as demanded by trade requirements. The officers of the new company, which has a capital stock of $60,000, are Albert D. Ullman, president; George A. Ray, vice-president, and W. B. Demarest, secretary-treasurer.

The properties of the Harriman Plow & Handle Company and the Harriman Ice & Coal Company, Harriman, Tenn., have been sold and transferred to the Harriman Mfg. Company, a New Jersey corporation, which will have its principal office in Harriman, Tenn. The business heretofore transacted by these companies will hereafter be conducted by the Harriman Mfg. Company, which is owned practically by the same parties. All contracts of the Harriman Plow & Handle Company and the Harriman Ice & Coal Company will be assumed by the new company. The officers of the new company are John A. Rockwell, president, and W. A. Rockwell, treasurer.

Miscellaneous.

The American Graphophone Company, Bridgeport, Conn., is erecting three additional buildings, one for the extension of the power house, one to increase the producer gas plant and another for a roll building. The extension to the power house is to be 40 feet square and will be equipped with a new Allis-Chalmers compound condensing engine of 600 horse-power, direct connected to Bullock generators. The producer gas plant, 30 x 70 feet, which is being installed by the Wiley Power Gas Company, Rochester, N. Y., is of 600 horse-power capacity and will make producer gas direct from anthracite coal. The company will use the gas for heating purposes only. The roll building is 65 x 110 feet, two stories high, and will be used for rolling the stock from which the flat graphophone disk records are made. In this building six new 24 horse-power rolls similar to those used in the rubber business will be installed.

The Willard Specialty Company, 23 Devereaux street, Utica, N. Y., has incorporated to manufacture paper cutters and printers.

The York Safe & Lock Company, York, Pa., is building an addition 60 x 110 feet and is erecting two furnaces for tempering steel in this building.

Marshall S. Hagar has been appointed receiver for the Libby Mfg. Company, New York, manufacturer of steam and water specialties.

The American Pin Company, Waterbury, Conn., has prepared plans for another large factory building in addition to those already mentioned in this column, but no decision has been reached as to when work will begin.

The Morgan Wood & Iron Works, Spartanburg, S. C., has sold out its wood business with the view of developing its iron department. It expects to take up the manufacture of light agricultural machinery shortly.

The Insley Iron Works, Indianapolis, Ind., has been organized, with a capital stock of $15,000, to operate a structural fitting and ornamental iron plant. W. H. Insley, president of

the company, was formerly at the head of the estimating and contract department of the Noelke-Richards Iron Works of Indianapolis, and Louis F. Aichhorn, the superintendent, was general shop foreman at the same plant. E. F. Kneller, secretary-treasurer, is secretary-treasurer of the American Hominy Company.

The Chicago, Milwaukee & St. Paul Railroad is planning to erect a large addition to its West Milwaukee shops, adapted particularly for the storage of patterns. The new building will be about 80 x 120 feet and three stories high.

The Oliver & Snyder Coke Company, Pittsburgh, will soon start the building of 400 coke ovens to develop the 500 acres of coal lands which the company owns at Oliver, in the Connellsville region.

Te Detroit Auto Specialty Company, Detroit, Mich., is erecting a two-story building, 54 x 133 feet, which will cost $10,000.

The Long-Arm System Company, Cleveland, Ohio, has been awarded a gold medal for its Earl's Court exhibit of Long-Arm electrically operated power doors for ships. This was one of the few displays of American devices in the Naval, Shipping and Fisheries Exhibit. The exhibit of this system, by which bulkhead doors are closed from a central station in time of emergency, has attracted the favorable attention of many European naval experts. Foreign admiralties are investigating it with a view to its adoption, following the example of the American Navy, which has installed the Long-Arm system on 32 of its ships. The development of automatic bulkhead doors has been effected wholly within the United States Navy. Francis T. Bowles, formerly Chief Constructor, first conceived the idea of an electrical apparatus for operating these doors. Another graduate of the Naval Academy, W. B. Cowles, perfected Admiral Bowles' idea into the practical system now in use.

The Gustafson Mfg. Company, Chattanooga, Tenn., has added to its machinery drills a buildozer and a multiple punch for the purpose of facilitating getting out mine cars, on which it has a number of patents. It contemplates an extension of its plant in the near future.

The Milwaukee Coke & Gas Company, Milwaukee, Wis., working under the general Semet-Solvay patents, is arranging to increase its capital from $1,000,000 to $2,000,000, and early in the coming year will contract for the construction of a third group of 80 coke ovens at its Greenfield avenue plant. The company is at present just completing the construction of a second battery of 80 ovens, which will be ready for use by January 1, giving it a total of 160 ovens, with an aggregate capacity of 1000 tons of coke daily. With the third group of 80 ovens the daily capacity will be between 1600 and 1700 tons of coke.

The Muncie Auto Parts Company, Muncie, Ind., has been incorporated with $15,000 capital stock. The directors are Hugh L. Warner, C. T. Quayle, C. R. Hathaway and H. L. Hooke.

The Western Launch & Engine Works, Michigan City, Ind., has increased the capital stock from $30,000 to $100,000.

McKeefrey & Co., operating McKeefrey Furnace at Leetonia, Ohio, have bought the plant of the Geneva Coke Company, near Masontown, Pa., for the reported price of $465,000. The new owners will build 68 new coke ovens at the plant, increasing it to 200 ovens. P. E. Crow will continue as superintendent.

H. R. Rea, a director of the Pressed Steel Car Company, Pittsburgh, denies that his company has secured control of the Standard Steel Car Company, Pittsburgh, with works at Butler, Pa. Mr. Rea states that no negotiations are on looking to consolidation of the two companies.

The National Fire Proofing Company, Pittsburgh, has secured some important contracts for the fire proofing of theaters, warehouses and other large buildings to be erected in London, England.

The McClure Company, Pittsburgh, manufacturer of tin plate, with mills at Washington, Pa., has leased for three years a two-story brick warehouse, 60 x 150 feet, on Fourth avenue, Pittsburgh, owned by the Wabash Terminal Company. The heavy increase in the business of the McClure Company has made necessary the additional warehouse facilities.

Upon the application of two stockholders J. H. Hunter has been appointed receiver for the National Cable & Wire Company, Pittsburgh, whose plant is at Shousetown, Pa. This action was caused by the failure of the Enterprise National Bank of Allegheny, Pa., of which T. Lee Clark was cashier, Mr. Clark being president of the National Cable & Wire Company.

New Railroad for Hauling Connellsville Coke.—Plans have about been consummated for the building of a new railroad by a company to be known as the Uniontown & Wheeling Short Line Company, which has in view principally the hauling of coke from the Connellsville region to the Wheeling district. Among the promoters of the new road are J. V. Thompson, banker, Uniontown, Pa., and D. F. Maroney, formerly of the Baltimore & Ohio Railroad. The line will extend from Uniontown, Fayette County, Pa., to Wheeling and Benwood, in West Virginia. The greater portion of the road will be completed, it is said, within 18 months of the beginning of the work of construction. One of the benefits claimed for it is the relief it will afford Pittsburgh from the annual congestion of traffic by diverting a portion of the heavy tonnage from the Connellsville coke regions and coal fields lying in Greene County. The promoters claim that its completion will be the signal for the opening up of thousands of acres of coking coal in the eastern and southern portions of Greene County and equally extensive deposits of steam and gas coal in the western district of the county. It is stated that the district to be opened up embraces fully 100,000 acres of good coal and is the only remaining bed of good coking coal in the western end of the State. J. V. Thompson was the prime mover in the development of the Klondike coal region.

Record Breaking Car Orders.

The Pennsylvania Railroad Company placed contracts last week for about 20,000 steel freight cars, which is the largest number of cars ever placed under contract at one time by a single railroad. Of these cars 12,000 will be built by the Pressed Steel Car Company, Pittsburgh; 2000 by the Standard Steel Car Company, Butler, Pa.; 2500 by the Cambria Steel Company, Johnstown, Pa.; 2500 coal hopper cars for the lines west and 600 box cars for the lines east by the American Car & Foundry Company and 400 box cars by the Middletown Car Works, Middletown, Pa. Of the order which went to the Pressed Steel Car Company 2500 cars are to be of the hopper type for the lines west and 5500 are to be gondolas and 4000 box cars for the lines east of Pittsburgh. All of the equipment will consist of cars of 100,000 pounds capacity and as far as possible will be constructed of pressed steel plates. By awarding these contracts the Pennsylvania Railroad Company completes the greatest campaign for new equipment it ever conducted. Since July 1 the company has ordered a total of 37,321 cars, of which 11,700 are for the lines west of Pittsburgh.

The United States Steel Corporation has placed an order for 1250 steel freight cars with the Pressed Steel Car Company, 750 of which are for its Duluth, Missabe & Northern Railroad and 500 for its Duluth & Iron Range Railroad. It has also ordered six freight engines of the consolidated type, to be built by the American Locomotive Company, and two passenger engines to be built by the Baldwin Locomotive Works.

It is stated that all car manufacturers are crowded with orders and that the American Car & Foundry Company alone has unfilled contracts aggregating over 60,000 cars, while no company can promise delivery before the middle of next year unless the order is for a few wooden cars. The greater number of the cars ordered during the current year are yet to be built and will keep the car manufacturers busy until well into the second half of next year.

From the detailed records kept by *The Railway Age* since 1901 of orders placed for new equipment the following totals are taken, the figures for 1905 covering the 41 weeks up to the present:

	1901.	1902.	1903.	1904.	1905.
Freight cars.....	193.439	195,248	105,936	136,561	196,672
Passenger cars...	2,879	3,459	2,310	2,213	2,297
Locomotives	4,340	4,665	3,283	2,538	4,131

It will be noted from this table that orders for freight cars for the first 41 weeks of the current year are in excess of the totals of any previous year, while the contracts for passenger cars and locomotives, if continued at their present rate, will also exceed any previous record.

In the Grand Duchy of Luxemburg 76 iron mines were operated in 1904, or four less than in 1903. The output increased, however, from 6,010,013 tons in 1903 to 6,347,781 tons. The average value of the ore per metric ton is put at 2 francs 59 centimes (about 52 cents), an advance of 4 centimes per ton. The mines gave employment to 6262 persons, of whom 4082 worked below ground, and 2180 on the surface.

The Iron and Metal Trades

Bookings of Finished Iron and Steel continue on an enormous scale and thus far this month are nearly up to the record breaking rate of September. The pressure in many quarters is enormous and the plants are provided with work for long periods. There is the most intense activity in all directions.

In the Eastern Steel trade there has been another outburst of buying of Basic Pig Iron for delivery during the winter and fully 75,000 tons have been taken at advancing prices, with negotiations pending for at least half as much more.

A scarcity of Pig Iron for Steel making is developing in the Chicago district and it is likely that Iron may be shipped from lower lake ports to that district by water before navigation closes.

The United States Steel Corporation has secured options at $16 and at $16.50 on practically all the Bessemer Pig available in the Mahoning and Shenango Valleys till the end of the year, the only exception being one lot of 10,000 tons held by a merchant.

These purchases of Iron are necessary in spite of the fact that the Steel Corporation is operating all its blast furnaces except three, of which two are out for repairs.

In the Steel Rail trade a number of fair orders have been booked and some additional large tonnage is looming up. Thus one system which has already bought 140,000 tons is again in the market for 20,000 tons more.

Inability to make prompt deliveries of Structural Material continues to be the only serious phase of the situation in that branch. A large tonnage for future requirements is being booked. With the large orders for cars in hand and in sight the Plate mills have an exceedingly busy time before them.

The amount of business done in Bars has been large and sellers are holding back. Among the orders for Merchant Pipe just placed is one for a 33-mile line in Louisiana.

The Cast Iron Pipe shops are very busy, with some large work coming up. Included in the latter is a good order for New York City. The shops cannot yet think of working for stock, which they usually begin to do at this time of the year.

There has been a heavy movement in Tin Plate, and there are included in recent sales nearly 7500 tons of Tin Plate for export.

Canadian buyers are very urgent for Steel and Finished Material, the volume of business there being extraordinary, but our mills are not in a position to take much of it.

The reports from foreign markets are excellent, the bookings of shipbuilding material in England, in particular, having been very large.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Oct. 25, 1905.	Oct. 18, 1905.	Sept. 27, 1905.	Oct. 26, 1904.
PIG IRON:				
Foundry No. 2 Standard, Philadelphia	**$17.50**	$17.25	$16.75	$14.75
Foundry No. 2 Southern, Cincinnati	**15.75**	15.25	14.75	13.75
Foundry No. 2, Local, Chicago	**17.75**	17.50	16.50	14.50
Bessemer, Pittsburgh	**16.85**	16.60	16.35	13.60
Gray Forge, Pittsburgh	**15.85**	15.85	15.10	12.85
Lake Superior Charcoal, Chicago	**18.50**	18.50	17.00	15.50
BILLETS, RAILS, &c.:				
Bessemer Billets, Pittsburgh	**26.00**	26.00	25.00	19.50
Forging Billets, Pittsburgh	29.00	29.00	29.00	....
Open Hearth Billets, Philadelphia	**28.00**	28.50	27.00	22.00
Wire Rods, Pittsburgh	**32.00**	32.00	31.50	26.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	14.50	14.50	14.50	11.50
O. Steel Rails, Philadelphia	**17.50**	17.25	16.25	14.00
O. Iron Rails, Chicago	**22.50**	22.00	21.00	17.50
O. Iron Rails, Philadelphia	**22.50**	22.50	22.00	17.00
O. Car Wheels, Chicago	16.00	16.00	16.00	13.00
O. Car Wheels, Philadelphia	**17.00**	17.00	15.00	13.00
Heavy Steel Scrap, Pittsburgh	**16.50**	16.50	16.00	12.50
Heavy Steel Scrap, Chicago	14.50	14.50	14.50	11.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	**1.83½**	1.83½	1.68½	1.43½
Common Iron Bars, Chicago	**1.80**	1.80	1.65	1.40
Common Iron Bars, Pittsburgh	1.74¾	1.74¾	1.74¾	1.30
Steel Bars, Tidewater, New York	1.64½	1.64½	1.64½	1.44½
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.30
Tank Plates, Tidewater, New York	1.74½	1.74½	1.74½	1.54½
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.40
Beams, Tidewater, New York	1.84½	1.84½	1.84½	1.54½
Beams, Pittsburgh	1.70	1.70	1.70	1.40
Angles, Tidewater, New York	**1.84½**	1.84½	1.84½	1.54½
Angles, Pittsburgh	1.70	1.70	1.70	1.40
Skelp, Grooved Steel, Pittsburgh	1.50	1.50	1.50	1.35
Skelp, Sheared Steel, Pittsburgh	1.55	1.55	1.55	1.40
SHEETS, NAILS AND WIRE:				
Sheets, No. 27, Pittsburgh	*2.15*	2.15	2.20	2.00
Wire Nails, Pittsburgh	**1.80**	1.80	1.75	1.60
Cut Nails, Pittsburgh	**1.65**	1.65	1.60	1.60
Barb Wire, Galv., Pittsburgh	**2.25**	2.25	2.20	2.20
METALS:				
Copper, New York	**16.62½**	16.62½	16.25	13.37½
Spelter, St. Louis	**6.10**	5.95	5.80	5.20
Lead, New York	**5.25**	5.25	4.85	4.20
Lead, St. Louis	**5.10**	4.95	4.75	4.20
Tin, New York	**32.60**	32.60	32.10	28.70
Antimony, Hallett, New York	*12.50*	12.25	12.75	7.12½
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	*3.49*	3.49	3.74	3.49

Chicago.

FISHER BUILDING, October 25, 1905.—(*By Telegraph.*)

Specifications and new tonnage for the heavier forms of Finished Material continue in excess of mill shipments. Notwithstanding the efforts that are being made to hold the market on a conservative basis premiums are being offered more generally on material for October delivery. The action taken by the manufacturers of Plates and Structural Shapes last week precludes the probability of an early advance on Steel Bars, although the smaller sizes already command a premium of $2 for early shipment. On account of the heavy tonnage booked the lull in the demand for Plates and Shapes is agreeable to the manufacturers, but specifications are almost 60 per cent. greater than the output of the mills, and deliveries are further deferred from week to week. Implement manufacturers, despite the heavy contracts they gave the mills during the summer months, are placing additional tonnage at premiums, as they now find that their requirements will be greatly in excess of estimates on which their contracts are based. Nor does this condition exist only in the Finished lines. Consumers of Pig Iron as well have underestimated their wants and are placing contracts for additional tonnage. Practically all of the unplaced Rail requirements of Western roads will now go to the Eastern mills, more than 200,000 tons having already been transferred to the Carnegie Works for 1906 delivery. A like tonnage was transferred earlier in the year. This indicates the necessity of increasing the local Rail output. The demand for Track Material continues unabated, Rail orders being accompanied by contracts for Angle Bars, Spikes and Track Bolts. The leading local producer this month alone secured contracts for 9000 tons of Spikes, notwithstanding

the heavy tonnage which was placed during the month of September. There is no halt in the upward move of Pig Iron prices, although Northern producers have not advanced them as much as furnaces in the South during the week. The latter are now generally asking $14 at the furnace for No. 2, and the available tonnage to be had on the basis of $13.50 is comparatively small. Coke shortage is already threatening the operation of several merchant stacks in this district, but the Illinois Steel Company is well prepared for any emergency, having accumulated a stock whose size compares favorably with the huge Coke pile carried at the Edgar Thomson Furnaces of the Carnegie Steel Company several years ago.

Pig Iron.—Southern Iron has again been advanced and is now held on the basis of $14, Birmingham, for No. 2, but sales at this price have been limited almost entirely to small lots. The tonnage that is still available at $13.50 is very small and before the end of the week the market will be squarely established on the $14 basis. Southern Basic has likewise advanced to $14.50, although there have been no sales of importance in this market during the week. Owing to the abnormal activity of the Western foundry trade consumers of Foundry Iron generally find that they have underestimated their requirements and the demand for spot shipment of Malleable and Northern Foundry Iron is unusually heavy. Several large users of Foundry Iron have not yet covered for the first quarter of next year, and one large interest that contracted through the first half some time ago is now in the market for an additional 6000 tons of miscellaneous Foundry grades for delivery the remainder of the year. We quote, at Chicago, as follows:

Lake Superior Charcoal	$18.50 to $19.00
Northern Coke Foundry, No. 1	18.25 to 18.50
Northern Coke Foundry, No. 2	17.75 to 18.00
Northern Coke Foundry, No. 3	17.25 to 17.50
Northern Scotch, No. 1	18.50 to 19.00
Ohio Strong Softeners, No. 1	18.55 to 18.80
Ohio Strong Softeners, No. 2	18.30 to 18.55
Southern Coke, No. 1	17.65 to 18.15
Southern Coke, No. 2	17.15 to 17.65
Southern Coke, No. 3	16.65 to 17.15
Southern Coke, No. 4	16.15 to 16.65
Southern Coke, No. 1 Soft	17.65 to 18.15
Southern Coke, No. 2 Soft	17.15 to 17.65
Southern Gray Forge and Mottled	15.65 to 15.90
Malleable Bessemer	17.75 to 18.00
Standard Bessemer	17.80 to 18.30
Jackson Co. and Ky. Silvery, 6 % Silicon	18.80
Jackson Co. and Ky. Silvery, 8 % Silicon	19.80
Jackson Co. and Ky. Silvery, 10 % Silicon	20.80
Alabama Basic	18.15

Metals.—Inability to secure early shipments of Pig Lead has advanced car lots of both Desilverized and Corroding in this market. Another advance has also been made in Spelter and higher prices are anticipated. We quote: Casting Copper, 16½c. to 16⅝c.; Lake, 16⅞c. to 17c.; Pig Tin, car lots, 33c. to 33½c.; small lots, 34c. to 34½c.; Spelter, prompt delivery, 6.10c. to 6.15c. for car lots; Lead, Desilverized, 5¼c. to 5⅜c.; Corroding, 5¼c. to 5⅜c. for 50-ton lots; on car lots, 2½c. per ton higher; Light Brass, 7⅜c.; Sheet Zinc is $7.50, list, f.o.b. Lasalle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 14c.; Heavy Copper, 13¾c.; Copper Bottoms, 12¾c.; Copper Clips, 13¾c.; Red Brass, 12¾c.; Red Brass Borings, 10¾c.; Yellow Brass, Heavy, 9⅜c.; Yellow Brass Borings, 7⅜c.; Light Brass, 7¼c.; Lead Pipe, 4¼c.; Tea Lead, 4c.; Zinc, 4½c.; Pewter, No. 1, 21c.; Block Tin Pipe, 27½c.

(By Mail.)

Billets.—The demand for Forging Billets is limited almost entirely to small lots for early delivery, all of the large buyers having covered some time ago at prices considerably lower than those now prevailing. Only a small tonnage is still available for delivery the remainder of the year, as the Illinois Steel Company is out of the market. We quote Forging Billets in large lots at $32, with the usual extras, and carloads and less at $34 to $35.

Rails and Track Supplies.—Practically all of the large contracts for Rails that are now being placed by Western roads are being transferred to the Carnegie Steel Company. This year the latter company has received contracts from Western roads aggregating 400,000 tons which would have been rolled here if the tonnage could have been taken on. The demand for Light Rails continues very heavy, the tonnage placed this month exceeding that of either August or September. The new business is considerably in excess of the capacity of the mills, and it is probable that the Light Rail output will be considerably increased in the near future. There is no let up in the demand for Spikes and Track Bolts. Contracts for Spikes this month aggregate 9000 tons. Quotations are unchanged, as follows: Angle Bars, accompanying Rail orders, 1906 delivery, 1.50c.; carload lots, 1.75c.; Spikes, 1.85c. to 1.95c.; Track Bolts, 2.40c. to 2.50c., base, Square Nuts. The store prices on Track Supplies range from 15c. to 20c. above mill prices. Light Rails, 30-lb. to 45-lb. Sections, $25.50; 25-lb., $26.50; 20-lb., $27.50; 16-lb., $29; 12-lb., $30; lighter Sections down to 8-lb., $35 to $38, f.o.b. mill. Standard Sections are quoted $28, f.o.b. mill, full freight to destination.

Structural Material.—At the meeting of the manufacturers of Structural Shapes held last week prevailing prices were reaffirmed. The leading manufacturers are making every effort to maintain prices on the present basis and to prevent a runaway market. New business is light and will doubtless continue so until after the first of the year, when the contracts for new projects will be placed. Jobbers continue to secure heavy premiums on Material for prompt delivery. For future delivery from mill we make the following quotations: Beams and Channels, 3 to 15 inches, inclusive, 1.86½c.; Angles, 3 to 6 inches, ¼-inch and heavier, 1.86½c.; Angles larger than 6 inches on one or both legs, 1.96½c.; Beams, larger than 15 inches, 1.96½c.; Zees, 3 inches and over, 1.86½c.; Tees, 3 inches and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending or other shop work. Store prices on Angles, Beams and Channels range from 2.50c. to 3c., according to quantity on hand, in store or obtainable from mill.

Plates.—Specifications are greatly in excess of shipments and deliveries are falling further behind from week to week. At the meeting of the Plate manufacturers held last week prices were reaffirmed and it was agreed to maintain them at a fair level to prevent any possibility of a runaway market. Current business continues light and consumers generally are not placing additional tonnage until the bulk of the material they contracted for some time ago has been shipped. Prices are firm and unchanged, as follows: Tank quality, ¼-inch and heavier, wider than 6¼ and up to 100 inches wide, inclusive, car lots, Chicago, 1.76½c.; 3-16 inch, 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Flange quality in widths up to 100 inches, 1.86½c., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, Tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier, up to 72 inches wide, 2c. to 2.10c.; from 72 to 96 inches wide, 2.10c. to 2.20c.; 3-16 inch up to 60 inches wide, 2.10c. to 2.20c.; 72 inches wide, 2.35c. to 2.45c.; No. 8 up to 60 inches wide, 2.10c. to 2.15c.; Flange quality, 25c. extra.

Sheets.—Special Sheets continue in good demand and mills that operate on these high grade specialties are having more tonnage offered them than they can handle. On the other hand, current demand for ordinary grades of Black Sheets is light and on the lighter gauges prices are somewhat easier. Orders accompanied by specifications can again be placed at 2.20c. for No. 28 gauge and as low as 3.20c. is being done on Galvanized Sheets. We make the following quotations: Blue Annealed, Nos. 9 and 10, 1.81½c. to 1.86½c.; Box Annealed, Nos. 18 and 20, 2.16½c. to 2.21½c.; No. 27, 2.31½c. to 2.36½c.; No. 28, 2.41½c. to 2.46½c., with the customary differentials between gauges. Store prices are 2c. to 2.10c. for No. 10 Blue, 2.05c. to 2.15c. for No. 12 Box, 2.10c. to 2.20c. for No. 14, 2.20c. to 2.30c. for No. 16, 2.40c. to 2.50c. for Nos. 18 and 20, 2.50c. for Nos. 22 and 24, 2.55c. to 2.65c. for No. 26, 2.60c. to 2.70c. for No. 27, 2.70c. to 2.80c. for No. 28, 2.95c. to 3.05c. for No. 30. Galvanized Sheets are quoted in car lots from mill at the following prices: No. 10, 2.36½c. to 2.41½c.; Nos. 17 to 21, 2.71½c. to 2.76½c.; No. 27, 3.26½c. to 3.31½c.; No. 28, 3.46½c. to 3.51½c. Store prices on Galvanized Sheets are firmer than for some time and high prices are being demanded for sizes difficult to obtain. Prices are as follows: Nos. 10, 12 and 14, 3.10c. to 3.20c.; Nos. 16 to 20, 2.90c. to 3c.; Nos. 22 to 24, 3c. to 3.15c.; No. 26, 3.20c. to 3.35c.; No. 27, 3.40c. to 3.55c.; No. 28, 3.60c. to 3.75c.; No. 34, 4.85c. to 4.95c.

Bars.—Specifications on Steel Bars, as on Plates and Structural Shapes, continue greatly in excess of mill shipments. Current business is also heavy despite the heavy buying during the months of September and October. No early advance is now anticipated, owing to the action taken at the Steel meetings last week. Iron Bars are firm at 1.80c., Chicago, and railroad interests continue to be the heaviest buyers. We make the following quotations: Iron Bars, 1.80c.; Steel Bars, 1.66½c., both half extras; Hoops, 1.91½c., extras as per Hoop card; Bands, 1.66½c., as per Steel card; Soft Steel Angles and Shapes, 1.76½c., half extras, and Hard Steel Angles and Bars at about 10c. below the price of Soft Steel. In store prices Steel Bars and Bands are being held at a minimum of 1.85c., base, half extras; Steel Angles and Shapes, 1.95c., half extras, and Soft Steel Hoops, 2.20c., full extras, with 5c. to 10c. higher than the minimum prices named for small quantities from store.

Merchant Steel.—Implement manufacturers who earlier in the year failed to cover their entire requirements are experiencing considerable difficulty in placing filling-in orders for Agricultural Shapes. Premiums are asked on Harrow Disks and Plow Shapes. The largest producers of this Steel have their entire output taken well through the first half of next year and outside mills that were not favored with these large contracts are now taking the business offered at premiums. We make the following quotations: Planished or Smooth Finished Tire Steel, 1.70c.; Iron finish up to 1½ x ½ inch, 1.65c., and Iron finish, 1½ x ½ inch and larger, 1.50c., base, Pittsburgh, and Channels for solid rub-

ber tire are quoted as follows: ¾, ⅞ and 1 inch, 2c., and 1⅛-inch and larger, 1.90c., Pittsburgh; Smooth Finished Machinery Steel, 1.91½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 1.86½c.; Cutter Shoe, 2.40c.; Toe Calk Steel, 2.21½c.; Railway Spring, 1.86½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 13c. and up; Shafting, 50 per cent. discount on car lots and 45 per cent. in less than car lots, in base territory.

Merchant Pipe.—While the shipments from Pipe mills are heavy on contracts placed last month new business is light. Jobbers, however, continue to report a heavy movement, thus preventing the accumulation of stocks, and this augurs well for the placing of large contracts with the mills when the next buying movement sets in. Current discounts to consumers from mill are being well maintained and are as follows: Black Steel Pipe, 78.35 per cent. on the base sizes, ¾ to 6 inches, and Galvanized, 68.35 per cent. Iron Pipe is quoted from 1½ to 2 points higher. From store in small lots Chicago jobbers are quoting 76½ to 77 per cent. on Black Steel Pipe, ¾ to 6 inches.

Boiler Tubes.—The current demand is heavy and there is absolutely no reason for the shading reported last week. Mills generally have heavy tonnages booked not only for the jobbing trade but for locomotive manufacturers as well. Prices are being maintained by the mills and what shading has been done was on the part of jobbers and dealers who are now securing the benefit of low priced contracts made months ago. Official discounts, f.o.b. Chicago, in car lots, are as follows: Steel Tubes, 62.35; Iron, 51.35; Seamless, 50.35. Store prices are unchanged as follows:

	Steel.	Iron.	Seamless.
1 to 1½ inches	40	35	42½
1¾ to 2½ inches	50	35	35
2½ inches	52½	35	30
2¾ to 5 inches	60	47½	42½
6 inches and larger	50	35	..

Cast Iron Pipe.—The city of Portland, Ore., last week awarded contracts for 3700 tons of Cast Iron Pipe to a foundry located in that city. We also note the sale of 1000 tons by the leading interest to a mining company in South Dakota. Current business continues heavy notwithstanding the fact that deliveries cannot be made in less than 30 days. On current business prices are unchanged as follows, f.o.b. Chicago, per net ton: Water Pipe, 4-inch, $30; 6, 8, 10 and 12 inch, $29; over 12-inch, $28, with $1 extra for Gas Pipe. Very large municipal contracts are placed on a somewhat lower basis.

Coke.—The lack of transportation facilities is largely the cause of the present sharp advances in Foundry Coke, as producers in both the Connellsville and Wise County fields have sufficient stock to meet present requirements. Western dealers are asking $3.50 to $3.65 at the ovens for Connellsville Foundry Coke, equivalent to $6.15 to $6.30, Chicago. Wise County producers are attempting to secure $4 at the ovens, or $6.25, Chicago, and in a few isolated cases this price has been paid by foundrymen that have been caught short. The Milwaukee by-product ovens will not have any Coke available until the first of the year, and on account of the constantly growing demand for this Coke have decided to add 80 additional ovens. The Chicago Semet-Solvay plant, consisting of 100 ovens, will be completed early next year, and the operation of this plant will insure a steady Coke supply to Western consumers, which is at present very uncertain on account of the transportation facilities.

Old Materials.—The entire tendency of the market is toward lower values and dealers, especially those in the country districts, are more inclined to accept lower prices than they were two weeks ago. Tremendous stocks are in their hands, and when the present upward movement started they were not inclined to let go. Railroad lists have been issued this week by the Chicago, Burlington & Quincy, the Northern Pacific and Wabash railroads, with the disposition of about 6000 tons of material. Small consumers are buying for immediate requirements only, and this to a large extent has brought about the present condition of the market, as dealers generally believed that the upward movement of prices would result in the purchase of heavy stocks by consuming interests. The range of prices paid by large consumers to producers and dealers, in carloads, f.o.b. Chicago, is as follows:

Old Iron Rails	$22.50 to $23.50
Old Steel Rails, 4 feet and over	16.00 to 16.50
Old Steel Rails, less than 4 feet	14.50 to 15.00
Heavy Relaying Rails, subject to inspection	26.50 to 27.00
Old Car Wheels	16.00 to 16.50
Heavy Melting Steel Scrap	14.50 to 15.00
Frogs, Switches and Guards	14.50 to 15.00
Mixed Steel	12.50 to 13.00

The following quotations are per net ton:

Iron Fish Plates	$18.50 to $19.00
Iron Car Axles	23.00 to 23.50
Steel Car Axles	18.00 to 18.50
No. 1 Railroad Wrought	17.00 to 17.50
No. 2 Railroad Wrought	16.00 to 16.50
Locomotive Tires, smooth	14.25 to 14.50
Railway Springs	14.00 to 14.50
No. 1 Dealers' Forge	14.00 to 14.50
Wrought Pipes and Flues	12.00 to 12.50
No. 1 Cut Busheling	12.00 to 12.50
Iron Axle Turnings	11.50 to 11.75
Soft Steel Axle Turnings	11.50 to 11.75
Machine Shop Turnings	11.00 to 11.50
Cast Borings	9.00 to 9.25
Mixed Borings, &c.	9.00 to 9.25
No. 1 Mill	10.00 to 10.50
Country Sheet	8.50 to 9.00
No. 1 Boilers, cut to Sheets and Rings	11.75 to 12.25
No. 1 Cast Scrap	13.50 to 14.00
Stove Plate and Light Cast Scrap	11.50 to 12.00
Railroad Malleable	14.25 to 14.50
Agricultural Malleable	13.25 to 13.75

Pittsburgh.

PARK BUILDING, October 25, 1905.—(*By Telegraph.*)

Pig Iron.—Reports in the daily press to-day that the United States Steel Corporation had bought 8000 tons of Bessemer Pig Iron from the Bessemer Pig Iron Association and W. P. Snyder & Co. for November and December delivery and had options on 100,000 tons for January delivery at $16.50, Valley furnace, are officially denied. The corporation has not bought any Iron since its recent purchase of 40,000 tons for October and November delivery, as noted in this report last week. It is very likely that it will buy 40,000 to 50,000 tons for November and the same tonnage for December delivery, but as yet nothing has been done in this direction. It is quite certain that Ore prices for next year will be at least 50c. a ton higher than this year, and with some furnaces paying upward of $3 a ton for Coke, for at least the first qurater of next year, the cost of making Pig will be relatively high. Predictions are made that Bessemer Iron is certain to go to $18 and may touch $20, but it is considered that this would be a calamity and would hurt the market very much. It is practically certain that the Steel Corporation would not buy Pig Iron at any such prices and its withdrawal from the market as a buyer would at once have the effect of softening prices. No large sales of Bessemer or Basic are reported this week, but there is a fair amount of inquiry. We note a sale of 3000 tons of Basic to an Open Hearth Steel plant at $16, Valley furnace, and one of 1000 tons of Bessemer for first quarter delivery at $16.50, Valley furnace. The minimum price of Bessemer and Basic Iron for this year's delivery is $16, Valley furnace, while $16.50 is quoted for first quarter delivery. The Foundry Iron market is very firm, Northern brands of No. 2 being held at $16 to $16.25 at furnace, while Northern Forge is $15 at furnace, or $15.85, Pittsburgh. There have been no large sales of Foundry or Forge.

Steel.—There is an absolute famine in the supply of Open Hearth Billets and the fact is pretty well established that there is a shortage in Open Hearth capacity and that consumers could readily use the output of at least two more large Open Hearth plants. Bessemer Billets are held at $26, while Open Hearth Billets command practically any prices sellers ask. Bessemer and Open Hearth Sheet and Tin Bars are $26.50 to $27 in random lengths.

(*By Mail.*)

While the week has been without special feature, general conditions in the Iron trade are very satisfactory, and demand for all kinds of material, with the exception of Tin Plate, is enormously heavy. The recent purchase of 40,000 tons of Bessemer Iron by the Steel Corporation and prospective purchases by that interest for November and December delivery will practically take up most of the available Iron for this year. There is a fairly active inquiry for Bessemer and Basic and the market is now squarely on the basis of $16, Valley, or $16.85, Pittsburgh. The recent heavy buying of Foundry Iron by the Westinghouse and Standard Sanitary interests has firmed up the market a good deal and Northern brands of No. 2 Foundry are now held at $16, Valley, by most sellers, but it is possible on small lots for November and December delivery $15.75 at furnace could be done. The market on Forge is more active and Northern brands are held at $15, Valley furnace, or $15.85, Pittsburgh. With Steel it is not a question of price, but where to get it, and Open Hearth Billets can hardly be had at any figure. Bessemer Billets now command $26, maker's mill, and $27 or higher is quoted on Open Hearth. The available supply of Sheet and Tin Bars is now pretty well centered in the Carnegie Steel Company, and this interest will charge $27 at mill for November Bars in random lengths. Tonnage in Finished Iron and Steel is enormously heavy, especially in Plates for Steel car purposes. The leading local Plate mills are simply congested with tonnage and will not enter orders for specified delivery. This allows some of the smaller outside mills that can make reasonably prompt shipments to ask premiums, which they are doing. Tonnage in Tin Plate is reported to be improving and in the larger sizes of Pipe is very heavy. There is not a cloud in the sky, with the single exception of the financial outlook, which is regarded as slightly doubtful owing to the life insurance disclosures, and the failure of a local national bank has created some uneasiness in this district, but not to any great extent.

Ferromanganese.—We note a continued scarcity of Ferro for prompt delivery and prices are high, with prospects of advancing still further. There are few sellers in the market that can promise prompt deliveries and on such orders

as high as $65 is being asked. We quote 80 per cent. foreign Ferro at $62.50 to $63, delivered, but note that some sellers refuse to accept less than $65. On contracts for Ferro for delivery through first half or over all of next year somewhat lower prices would be named.

Steel Rails.—The Carnegie Steel Company has taken a contract from the Kansas City & Western Railroad for 37,000 tons of Rails. This month will be a record breaker for output of Rails at the Edgar Thomson plant of the Carnegie Steel Company, this mill expecting to turn out this month fully 75,000 tons or perhaps more. The best previous month's record is 71,000 tons, held by the Illinois Steel Company, but the Edgar Thomson mill will eclipse this record this month. Tonnage being placed in Rails is heavy, and the New York Central is expected to place about 40,000 tons additional within a short time. The Baltimore & Ohio order for 70,000 tons will be distributed to the mills within a week or two. The Western roads continue to buy heavily and tonnage being entered is unusually large. It is understood that the Rail mills now have practically 1,500,000 tons booked for next year, and predictions are made that the mills will turn out in 1906 3,000,000 tons or more. We quote Standard Sections at $28 at mill. There is a fairly active demand for Light Rails and the market is firm. We quote: 8-lb., $36 to $37; 10-lb., $32 to $33; 12-lb., $29 to $30; 16-lb., $27 to $28; 25-lb. to 45-lb., $26 to $26.50, all f.o.b. cars maker's mill.

Rods.—We are advised that one or two large inquiries for Rods are in the market, but two of the leading sellers refuse to quote on this business, needing their entire output of Rods for their Wire mills. We quote Bessemer and Open Hearth Rods at $32 to $32.50, maker's mill, while Open Hearth Chain Rods are $33, maker's mill.

Muck Bar.—A local consumer is in the market for about 2500 tons of Muck Bar, which is expected to be placed this week. Prices have again advanced, owing to the higher prices of Forge Iron and we quote best grades of Muck Bar, made from all Pig Iron, at $28.50, Pittsburgh.

Skelp.—The mills continue somewhat behind in deliveries, especially on Grooved and Sheared Iron Skelp, and a fair amount of new tonnage is being placed. Prices are firm and for ordinary widths we quote: Grooved Steel Skelp, 1.50c. to 1.55c.; Open Hearth, 1.55c. to 1.60c.; Sheared, $1 advance; Grooved Iron Skelp, 1.55c. to 1.60c.; Sheared, 1.65c. to 1.70c., maker's mill.

Plates.—The order for 20,000 Steel Cars placed last week by the Pennsylvania Railroad means a demand on the mills for an additional 250,000 tons of Plates and Small Shapes and adds to the congested condition of their order books. It is said the leading Plate mills have more tonnage on their books at the present time than ever before in their history. The action of the Plate mills at their meeting last week in reaffirming prices is generally commended. Considerable pressure was brought to bear for an advance by some of the Eastern mills that buy their Steel in the open market, but it was decided that the market could be best served by making no advance. Prices continue firm and we quote: Tank Plates, ¼ inch thick, 6¼ up to 100 inches in width, 1.60c., base, at mills, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edges	$0.10
Gauges Nos. 7 and 8	.15
Gauge No. 9	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00
All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
Marine, "A. B. M. A.," and ordinary Fire Box Steel Plates	.20
Still Bottom Steel	.30
Locomotive Fire Box Steel	.50

Shell Grade of Steel is abandoned.

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ½ of 1 per cent. is allowable. Pacific Coast base, 1.40c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank, Ship or Bridge quality.

Structural Material.—No large bridge or building contracts have been placed in this vicinity recently, and while a good deal of work is in sight it is probable much of it will go over until next year on account of the congested condition of the Structural mills and the Structural concerns as well, which are crowded with work for the next four to six months. Some of the Structural concerns will not promise any new work this side of April and the mills are from three to four months behind on deliveries. The McClintic-Marshall Company has about finished the building of its No. 2 bridge shop, which will give it a much larger product. Prices are firm and for small lots of Structural Steel for spot shipment premiums are being paid. We quote: Beams and Channels, up to 15-inch, 1.70c.; over 15-inch, 1.80c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.70c.; Angles, 8 x 8 and 7 x 3½ inches, 1.80c.; Zees, 3-inch and larger, 1.70c.; Tees, 3-inch and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Sheets.—The expected advance in price of Sheets has not yet been made, but is expected by the trade at any time. Tonnage in Sheets is steadily expanding and some concerns are refusing to see very far ahead on account of the expected higher prices. Prices are firm but without change, and we quote: Black Sheets, box annealed, one pass through cold rolls, Nos. 22 and 24 gauge, 2.05c.; Nos. 25 and 26, 2.10c.; No. 27, 2.15c.; No. 28, 2.25c.; No. 29, 2.40c., and No. 30 gauge, 2.50c. Galvanized Sheets are firm in price and we quote: Nos. 22 and 24, 2.70c.; Nos. 25 and 26, 2.90c.; No. 27, 3.10c.; No. 28, 3.30c.; No. 29, 3.55c.; No. 30, 3.80c. We quote No. 28 gauge Painted Roofing Sheets at $1.60 per square, and Galvanized Roofing Sheets, No. 28 gauge, at $2.80 for 2½-inch corrugation. Jobbers charge the usual advances over these prices for small lots from store.

Iron and Steel Bars.—In spite of the large contracts for Steel Bars placed some time ago by leading consumers new tonnage is heavy and some of the leading mills have their entire product sold up for the next three months or longer. Conditions in the Iron Bar trade are excellent, the Republic Iron & Steel Company operating practically all of its mills to full capacity, while the independent concerns are doing equally as well. We quote Iron Bars at 1.70c., Youngstown, or 1.74¾c., Pittsburgh, and Steel Bars at 1.50c., base, half extras, for carloads and larger lots.

Hoops and Bands.—Conditions in this trade are unchanged, a fair amount of new tonnage being placed, while consumers are specifying very freely on contracts. We quote Steel Hoops at 1.75c., and Bands to be used for cooperage purposes at 1.75c., the latter carrying full Hoop and Band extras. Bands for other than cooperage purposes are 1.50c., base, half extras, as per Standard Steel card. Above prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery.

Tin Plate.—Based on present prices of Tin Bars the official price of $3.30 on Tin Plate is regarded as very low and is stimulating demand to some extent. We are advised that one leading mill has withdrawn from the market as a seller of Tin Plate at $3.30 a box and is now quoting $3.40 minimum. We quote Tin Plate at $3.30 per base box, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days.

Merchant Steel.—Consumers are specifying very freely on contracts and deliveries from the mills are unsatisfactory. It is said that on agricultural Steels two of the local mills have their entire product sold for the next six months. For current tonnage we quote: Smooth Finished Tire, 1.70c.; Toe Calk Steel, 2c. to 2.05c.; Railway Spring Steel, 1.65c. to 1.70c.; Cutter Shoes, 2.20c. to 2.25c.; Flat Sleigh Shoe, 1.50c. to 1.55c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades and 12c. and upward for special grades. The demand for Shafting is quite heavy, which we quote at 50 per cent. discount in carloads and 45 per cent. in less than carloads, delivered in base territory.

Railroad Spikes.—Demand continues heavy and makers of Railroad Spikes are very firm in their ideas of prices. We quote at $1.80 to $1.85 per 100 lbs., maker's mill.

Spelter.—The report has been confirmed that Missouri Spelter has been sold for export to Europe. Domestic demand is heavy and prices are very firm. We quote prime grades of Western Spelter at 5.90c. to 5.95c., St. Louis, equal to 6.02½c. and 6.07½c., Pittsburgh.

Merchant Pipe.—The leading interest has secured a large contract for Line Pipe for delivery in Louisiana, while an outside mill has taken a contract for 33 miles of 10-inch Line Pipe for delivery in West Virginia. A good deal of tonnage in Line Pipe is in prospect, but owing to lateness of the season much of it will likely be held over until next year. The tone of the market on Merchant Pipe is stronger and some low prices have recently been withdrawn. Oil country goods, which have been very dull all year, are looking up a little and it is reported some tonnage is being placed. Discounts are as follows:

Merchant Pipe.

	Jobbers, carloads.				Consumers, carloads.			
	Steel.		Iron.		Steel.		Iron.	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
	%	%	%	%	%	%	%	%
⅛ and ¼ inch	72	56	69½	53½	71	55	68½	52½
⅜ and ½ inch	76	64	73½	61½	75	63	72½	60½
¾ to 6 inches	80	70	78	68	79	69	77	67
7 to 12 inches	75	60	73	57½	74	59	72	56½
Extra strong, plain ends:								
⅛ to ⅜ inch	65	53	62½	50½	64	52	61½	49½
½ to 4 inches	72	60	69½	57½	71	59	68½	56½
4½ to 8 inches	68	56	65½	53½	67	55	64½	52½
Double extra strong, plain ends:								
½ to 8 inches	61	50	58½	47½	60	49	57½	46½

Boiler Tubes.—The mills have a very large tonnage on their books and current demand continues excellent. Discounts are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1¼ inches	41	44
1¾ to 2¼ inches	41	56
2½ inches	46	58
2¾ to 5 inches	53	64
6 to 13 inches	41	56

Coke.—We note a continued heavy inquiry for Furnace Coke for delivery in first quarter and first half of next year and for which very high prices are being paid. As high as $3 to $3.10 at oven is being quoted on strictly Connellsville Furnace Coke for delivery in first quarter, but for shipment over first half about $2.85 could be done. The report is generally believed that the United States Steel Corporation has bought the entire product of Furnace Coke of the W. J. Rainey Coke Company for first half of next year on a sliding scale contract, based on the price of Pig Iron. As near as can be learned the Rainey Company has not sold a ton of Furnace Coke for delivery next year, and this is advanced as the reason for believing that the concern has made a deal with the Steel Corporation. Strictly Connellsville 72-hour Foundry Coke for delivery in first half of next year is quoted at $3 to $3.25, while for first quarter delivery $3.50 a ton at oven is quoted. It is said that actual contracts for first quarter delivery have been made at the latter price. So far the supply of cars for moving Coke has been quite satisfactory, and there has been very little complaint from shippers. Output of Coke continues very heavy, the Upper and Lower Connellsville regions having made last week 362,237 tons.

Iron and Steel Scrap.—The Scrap market continues active, a good deal of material changing hands and prices are firm. Heavy Melting Scrap is held at $16.50 to $17, while dealers quote other grades as follows: No. 1 Wrought Scrap is $16.50; Cast Iron Borings, $9 to $9.50; Bundled Sheet Scrap, $14.25 to $14.50; Old Steel Rails, short pieces, $16; long pieces, $16.50; Machinery Cast Scrap, $15, and Cast Steel Scrap, $15.50, all in gross tons, f.o.b. Pittsburgh.

Philadelphia.

REAL ESTATE TRUST BUILDING, October 24, 1905.

The Iron and Steel markets have been somewhat less active during the week, but prices have stiffened a little, and in almost all lines trifling advances have to be paid to secure satisfactory material. There is considerable nervousness in regard to Pig Iron, but makers are doing their best to keep prices something near to their present level, although when buyers insist upon long date contracts they have to pay full quoted rates or a little more than that. There is some scarcity of spot Iron, but no serious inconvenience has been felt as yet, and it is probable that none will be, although there is more or less uncertainty on that point. Consumption is large and increasing, while the output of furnaces in this district is not as well maintained as was expected. The car scarcity is something of a bugaboo, but even that may not be as bad as some people imagine, as it is noticed that new cars of great capacity are being used in most of the shipments made during the past week or two. It is a problem of great importance, however, and one that time alone can solve. Much will depend upon atmospheric conditions, and as these are peculiarly uncertain it is quite impossible to figure with any degree of confidence in regard to this very important matter. Considering the liberal additions of equipment made by the railroads during the past 12 months there ought not to be any serious shortage of facilities, although there is no doubt that apart from the Iron trade the demands for transportation will be the heaviest on record. The greatest scarcity at present, however, is in Structural Material. In going around where building operations are in progress it is surprising to find so much work delayed for want of material. School houses, churches, stores, bridges and elevated and tunnel work are all waiting for material, with no certainty of relief in the near future. Other lines might perhaps be similarly situated if consumption was unrestricted, but when work is hung up because of nondelivery of one class of material the use of other material is suspended also, so that while it is more apparent in some directions than in others it would probably be of general application if there was enough Structural Material to permit work to be carried through as specified and on dates agreed upon. From present appearances, therefore, there will be more or less uncertainty all through the winter months, but it is clear that there will be all the work that can be handled—the difficulty will be to get it through.

Pig Iron.—Prices are very strong, although the demand is not as large as it was a week or two ago. A great deal of Iron has been taken within the past 30 days and it is only natural that there should be something of a pause, as buying cannot continue indefinitely. Moreover, prices are considerably higher than they were at that time, and in addition to that it is not easy to buy Iron for forward delivery even at the outside figures of to-day. Makers have taken about all the business they care for, so that they are very firm in their prices and unless there are special reasons for accepting new orders they would just as soon not quote at all. As a rule $17.75 may be regarded as a fair average price for No. 2 X Foundry and $15.75 for Gray Forge, although some quote a trifle more, some a trifle less, but it all depends on circumstances, conditions being such that sellers can make their own terms without regard to the general market. Basic Iron is strong at $17.50 to $17.75. Sales of good sized lots have been made at the inside figure, but there is very little offering and it is quite likely that more money will be paid on the next transaction. There is a good deal of inquiry from the Pipe founders for low grade Iron and material of that class has advanced considerably during the past 30 days. To summarize the entire situation, however, it may be said that while prices are strong the keen edge of the demand has become somewhat dulled and it is not unlikely that there may be a period of dullness during the next week or two, although no recession in prices is looked for. When vigorous buying is resumed it is expected to carry prices to a somewhat higher level, but as we said before a period of dullness may be met with continuing more or less through the coming month. To-day's prices for Philadelphia and nearby deliveries would be about as follows:

No. 1 X Foundry	$18.00 to $18.25
No. 2 X Foundry	17.50 to 17.75
No. 2 Plain	17.00 to 17.25
No. 2 X Southern	17.50 to 18.00
Standard Gray Forge	15.75 to 16.00
Basic	17.50
Low Phosphorus	22.50 to 23.00

Ferromanganese.—It is almost impossible to get delivery of this article, but small lots, when they can be had, command $61.50 to $62.50 on dock.

Ferrosilicon.—There is a good demand, against which sellers quote as follows: 11 per cent., $29 to $30; 50 per cent., $95, and 75 per cent, $170 to $175.

Steel.—There is plenty of demand, but makers complain that prices are not in proportion with those for raw material. For the usual run of orders quotations are given as $28 to $29, delivered.

Muck Bars.—Nothing is doing; prices nominal, at about $28, f.o.b. seller's mill.

Plates.—Orders come in with the usual regularity, but manufacturers complain that prices are too low in proportion with the increased cost of raw materials. They are running their plants very full, however, and to that extent they are enabled to work economically, although the margin for profit is too small for such times as these. Prospects indicate continued activity during the winter months, and prices are firm, as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel	1.73½	1.78½
Flange or Boiler Steel	1.83½	1.88½
Marine, A. B. M. A. and Commercial Fire Box Steel	1.93½	1.98½
Still Bottom Steel	2.03½	2.08½
Locomotive Fire Box Steel	2 23½	2.28½

The above are base prices for ¼-inch and heavier. The following extras apply:

	Per 100 pounds extra.
3-16-inch thick	$0.10
Nos. 7 and 8, B. W. G.	.15 "
No. 9, B. W. G.	.25 "
Plates over 100 to 110 inches	.05 "
Plates over 110 to 115 inches	.10 "
Plates over 115 to 120 inches	.15 "
Plates over 120 to 125 inches	.25 "
Plates over 125 to 130 inches	.50 "
Plates over 130 inches	1.00 "

Structural Material.—Great inconvenience is experienced by the inability of the mills to get out material in accordance with their agreements. It appears to be impossible for them to do so, however, although it keeps a lot of other work back which would be very helpful in other departments. Prices are supposed to be as follows, but dollars per ton more would be paid if there was any certainty of reasonably prompt deliveries. Beams and Channels up to 15 inches at 1.83½c. to 2c., and a tenth more for large sizes and about the same schedule for Angles.

Bars.—There is plenty of business, such as it is, but a good deal of it is not what manufacturers want. Some large consumers who bought heavily for the first half of 1906 are now asking for bids on 500 and 1000 ton lots for the last half of next year, which is altogether too far ahead to be seriously considered at this time. Some orders for November and December shipment would be taken at about 1.83½c. for Best Refined Bars, but mills are pretty well supplied with work, although specifications do not come in quite as well as might be expected. Steel Bars are quoted at 1.63½c. to 1.73½c., but there is considerable difficulty in securing prompt shipments.

Sheets.—The demand is satisfactory but prices drag, and while raw materials are dearer, Sheets remain at the old prices, viz.: 18 to 20 gauge, 2.30c.; 22 to 24 gauge, 2.40c.; 25 and 26 gauge, 2.50c.; 27 gauge, 2.60c., and 28 gauge, 2.70c.

Old Material.—Steel Scrap is scarce and higher, but

there is no change in Rolling Mill Scrap, quotations being about as follows for deliveries in buyers' yards:

Scrap Steel Rails	$17.50 to $18.50
No. 1 Steel Scrap	17.25 to 17.50
Low Phosphorus Scrap	22.00 to 22.50
Old Steel Axles	21.50 to 22.50
Old Iron Axles	27.50 to 28.00
Old Iron Rails	22.50 to 23.00
Old Car Wheels	17.00 to 17.50
Choice Scrap, R. R. No. 1 Wrought	22.00 to 22.50
No. 1 Yard Scrap	19.00 to 19.50
Long and Short	18.00 to 18.50
Machinery Scrap	16.00 to 16.50
Wrought Iron Pipe	16.50 to 17.00
No. 1 Forge Fire Scrap	15.50 to 16.00
No. 2 Light Ordinary	12.50 to 13.00
Wrought Turnings	14.50 to 15.00
Axle Turnings, Choice Heavy	15.00 to 15.50
Cast Borings	10.00 to 10.50
Stove Plates	13.00 to 13.50
Grate Bars	12.75 to 13.00

George S. Woodruff, who has been with Justice Cox, Jr., & Co. the past 17 years, announces that he has commenced business on his own account, with offices in the Crozer Building, 1420 Chestnut street. His specialty will be Railroad and Contractors' Equipment.

Cleveland.

CLEVELAND, OHIO, October 24, 1905.

Iron Ore.—Storms on the lakes in the past week delayed shipments of Ore to some extent. Unloading equipment has been given a respite and railroads have been able to get rid of some of the surplus Ore to make room for the rush expected a little later. Enough Ore has been brought down now to last through the winter, according to all estimates made, yet it seems likely that shipments through this month will be ahead of those for October a year ago. With grain rates equal to $1.35 or upward on Ore not much wild tonnage is finding its way into the Ore market at 75c., the prevailing Duluth rate. To an occasional inquiry from furnacemen about Ore prices for 1906 sellers reply that it is too early to take up that question.

Pig Iron.—The difficulty of getting Iron shipped owing to a scarcity of cars is a good deal talked about. Some of the foundry interests in this territory report that it is hard to get any large amount of Iron for delivery during the remainder of the year, most furnaces having been sold up for some time. A few have taken chances on their furnaces producing normal amounts and have contracted for delivery of more Iron than they ordinarily would. There have been sales in this territory by furnaces which ordinarily do not ship in here. Southern furnaces have been selling some Iron here recently, although they are now reported well sold up also. Quotations on Foundry Iron range from $16 to $16.50 in the Valleys for No. 2, with very little available at that figure. Southern furnaces have reported sales at $13.50, Birmingham, to which is to be added $3.85 as freight to Cleveland. Valley furnaces as a rule have little Steel making Iron to offer for the balance of this year. Some have inquiries for Iron for delivery through the remainder of this year and the first quarter of next on which they are unable to make quotations. Prices are stronger, with $16 in the Valleys regarded as minimum, while $16.50 at furnace is generally quoted. Some furnaces are not yet covered for Coke for the first half of 1906. At present the Coke supply is uncertain, due in the main to car shortage. Prices were marked up during the past week to $3.75 at the oven for the best grades of 72-hour Foundry Coke and $3.25 for Furnace Coke. One furnace made a quotation of $4 at the oven for the best selected grades of 48-hour Coke.

Finished Material.—Few new features appear, but old conditions have been intensified. The price of Billets being reaffirmed by the association did not affect this market, where premiums have been paid for three months. There is a shortage of both Rerolling and Forging Billets, the latter being especially in demand. More fancy prices have been paid, and $30 to $31, Pittsburgh, is not uncommon. Bessemer 4 x 4 Billets have sold at $27, Pittsburgh, with buyers eager. The severe storms on the lakes during the past week and heavy damage to ships caused a lively demand for Plates for repair work. Some of the Eastern Plate mills supplying the trade here have begun to ask a $2 premium, which is now paid. The supply from the East does not seem to be as abundant as heretofore, although deliveries are made in a reasonable time. The Bar Iron situation is unusually strong. A few mills report being sold up for a good part of the first half of next year and have nothing to offer for the first quarter. A strong demand, together with the high price of Scrap, has resulted in higher prices. The general market is now quoted at 1.75c., Youngstown, and sales are made at 1.80c. where quick shipment is required. The supply of Structural Steel is still short. Buyers who go to the smaller mills in outside territories to piece out their needs pay a premium of from $5 to $7 a ton over the association price. Mills report that it will be some time before they are sufficiently caught up with their orders to permit them to take on any good sized contracts. Sheets may be a little stronger, but there is no marked change in the situation except less of a tendency to cut prices. Quotations out of stock remain unchanged at 2.05c. for No. 10 Blue Annealed, 2.55c. for No. 28 one-pass Cold Rolled and 3.55c. for No. 28 Galvanized.

Old Material.—Buying has been much heavier during the week. In addition the outlook is so bright, based on the state of other lines of trade, that dealers have again advanced quotations. Following are the dealers' quotations to the trade, gross tons: Old Steel Rails, $16 to $16.50; Old Iron Rails, $21 to $22; Old Car Wheels, $16 to $16.50; Heavy Melting Steel, $16.50 to $17. Net tons: Cast Borings, $9.50 to $10; No. 1 Busheling, $14.50 to $15; No. 1 Railroad Wrought, $16.50 to $17; Iron Car Axles, $21 to $22; No. 1 Cast, $14.50 to $15; Stove Plate $11; Iron and Steel Turnings and Drillings, $11.

Cincinnati.

FIFTH AND MAIN STS., October 25, 1905.—(*By Telegraph.*)

Pig Iron.—The market during the past week has gained some strength and the indications all seem to point to a still further increase in this direction. With the furnaces well sold up for the remainder of this year and for the first quarter and even later into next, it is not to be wondered at that there is not as much Iron offering at this time as was the case a few weeks since. Then, again, inquiry is said to be much lighter, showing almost conclusively that consumers have to a large extent bought what they consider a sufficient tonnage to last for some months to come and have no especial interest in the market at the present time. Several of the large producers of the South have made quotations that practically take them out of the market, while we hear of others who state that they do not care for any business just now. This probably means that they have their output practically sold ahead and do not see their way clear to make any new contracts until later in the year. There is apparently less inquiry for Gray Forge, although the market for this grade rules strong, one sale being recorded of 400 tons at $12, Birmingham. Basic is said to be in good demand and gaining strength. We are told of one sale of 3000 tons that went at $16, Valley furnace. The general foundry trade is showing more activity, all of the local concerns having as much as they can do. Southern No. 2 is quotable 50c. higher than last week, which would make our schedule read from $13 to $13.50, Birmingham, which appears to be on a fairly well established basis, although we hear of some sales of spot Iron being made below these figures. Then, again, we are advised by one or two of the selling agents that their prices are $14 minimum, but as no sales have been reported at this latter figure we do not feel justified in making this quotation, feeling that $13.50 is as near correct as possible. Northern Irons have also moved a step higher, No. 2 being quotable at from $15.75 to $16.25, furnace. We are advised that one of the leading Pipe industries bought during the week in the neighborhood of 25,000 tons, consisting of both Northern and Southern Low Grade Irons, but were unable to learn the price. Freight rates from Hanging Rock district to Cincinnati, $1.15, and from Birmingham, $2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$16.25 to $16.75
Southern Coke, No. 2	15.75 to 16.25
Southern Coke, No. 3	15.25 to 15.75
Southern Coke, No. 4	14.75 to 15.25
Southern Coke, No. 1 Soft	16.25 to 16.75
Southern Coke, No. 2 Soft	15.75 to 16.25
Southern Coke, Gray Forge	14.50 to 15.00
Southern Coke, Mottled	14.25 to 14.75
Ohio Silvery, No. 1	19.40 to 19.65
Lake Superior Coke, No. 1	17.40 to 17.90
Lake Superior Coke, No. 2	16.90 to 17.40
Lake Superior Coke, No. 3	16.50 to 16.90
Car Wheel and Malleable Irons.	
Standard Southern Car Wheel	$18.75 to $19.00
Lake Superior Car Wheel and Malleable	18.25 to 18.50

Coke.—This market is very strong and a full supply is almost unobtainable. Prices are higher and the general appearance of the situation impresses one as being very unsettled. Operators are complaining of insufficient cars and consumers of delay in deliveries. We quote, f.o.b. ovens, as follows: Best grades of Connellsville Foundry, $3.50 to $4; Stonega, Va., $4, with other grades of Wise County Foundry Cokes at $3.50.

Finished Iron and Steel.—The demand still continues to be heavy, with Plates and Shapes growing stronger each day. Complaints are made of the manner in which deliveries are made, but there seems to be no redress under the circumstances, as all the plants are working to their limit. Prices are unchanged. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.65c., with half extras; the same in smaller lots, 1.90c., with full extras; Steel Bars, in carload lots, 1.63c., with half extras; the same in small lots, 1.85c., with full extras; Base Angles, 1.73c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates,

¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16-gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14-gauge, in carload lots, 2.05.; in smaller lots, 2.60c.; Steel Tire, ¾ x 3-16 and heavier, 1.83c., in carload lots.

Old Material.—Prices are a little stronger and the market is very firm and fairly active. We quote, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, $17 to $17.50 per net ton; No. 1 Cast Scrap, $14 to $14.50 per net ton; Iron Rails, $20 to $21 per gross ton; Steel Rails, rolling mill lengths, $15 to $15.50 per gross ton; Relaying Rails, 56-lb. and upward, $24.50 to $25 per gross ton; Iron Axles, $22.50 to $23 per net ton; Car Wheels, $16.50 to $17 per gross ton; Heavy Melting Scrap, $15 to $15.50 per gross ton; Low Phosphorus Scrap, $18.50 to $19 per gross ton.

New York.

NEW YORK, October 25, 1905.

Pig Iron.—The market has been quite active and has gained in strength all along the line. The greatest activity has taken place in Basic Pig Iron, which has advanced to $17, at furnace, under heavy sales which aggregate close to 75,000 tons and cover deliveries well into the second quarter of next year. There are further large quantities needed for delivery during the winter and these are now under negotiation. We quote Northern Irons, at tidewater: No. 1 Foundry, $18 to $18.50; No. 2 Foundry, $17.50 to $18, and No. 2 Plain, $17 to $17.50. Southern Iron is selling at $18 to $18.25 for No. 1 Foundry and $17.25 to $17.75 for No. 2 Foundry.

Steel Rails.—Announcements of large tonnages are hardly to be expected every week, and for the past week the absence of important contracts is noticeable. While the Baltimore & Ohio purchases have not been completed it is understood that the 71,000 tons figured on will be distributed among Johnstown, Sparrow's Point and Pittsburgh. Business closed in the past week includes 5000 tons additional for the Lake Shore, 8000 tons for the Mississippi Central, 12,000 tons more for the Tidewater Railway, making its total 35,000 tons; 5000 tons for the Great Northern, bringing its total to 40,000 tons; 3600 tons for the New York, Ontario & Western, and 3000 tons for the Indianapolis & Southern. Purchases for traction roads are being made in several hundred ton lots and there is good miscellaneous buying. Considerable tonnage for Western steam roads is still pending.

Structural Material.—Additional railroad bridge work is being figured on, and the outlook for the immediate and the more distant future is all that could be desired. Building operations locally and throughout the country promise unusual tonnages in the early months of 1906. A good deal of miscellaneous construction work, principally buildings, is reported in various parts of the South. In New York no large new building projects have come to the notice of the Steel companies in the week. No. 1 of the Phipps model tenement houses, which will go up on Thirty-first street, East Side, is now being figured on. These buildings will be six stories and will require about 500 tons of Steel each. We quote as follows, for tidewater deliveries on shipments from mills: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c.; Beams, 18 to 24 inches, 0.10c. extra; Angles, over 6 inches, 0.10c. extra. Where shapes are bought out of stock prices range from 2.25c. to 2.75c.

Plates.—The Plate trade has been comparatively quiet, most local consuming interests having freely covered their wants prior to the recent meeting of the manufacturers. Quotations at tidewater for shipment from mills are as follows: Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c.; Marine Plates, 1.94½c. to 2.04½c.; Fire Box Plates, 2.04½c. to 2.60c., according to specifications.

Cast Iron Pipe.—The city of Orange, N. J., on Monday opened bids on 4000 tons of 20, 24 and 30 inch Pipe, but the contract has not yet been awarded. The city of New York will open bids November 8 for 7800 tons of 48 and 60 inch Pipe for Manhattan and Bronx boroughs. Pipe manufacturers report the demand surpassing anything previously known at this season. Usually at this time the foundries are at work on stock Pipe, but this year the demand for prompt shipment has been so strong that it has been impossible so far to accumulate any stock. Small sizes are so scarce that a premium of $1 to $2 per ton can easily be obtained by those in a position to supply such a demand, most of the foundries being unable to promise deliveries on such sizes for 60 days or more. Prices are firmly held on the basis of $27.50 per net ton for carload lots of 6-inch at tidewater for forward delivery.

Bars.—The Eastern Bar Iron manufacturers at their meeting in this city last week decided to reaffirm the official basis of 1.50c., Pittsburgh. This price is, of course, not applicable to any actual business. Some of the manufacturers are taking a limited tonnage on the basis of 1.60c., Pittsburgh, or 1.74½c., tidewater, but most of the mills will take no business under 1.84½c. The demand for Bar Iron continues very active and orders are being frequently declined because of inability to make delivery within the desired time. Steel Bars are quoted on a basis of 1.50c., Pittsburgh, or 1.64½c., tidewater, but mills cannot make deliveries under 60 to 90 days.

Old Material.—The market is very strong and prices are tending upward. Among the sales of the week were 1000 tons of heavy Cast Scrap at the full market price and 2000 tons of Old Steel Rails at 25c. higher than quoted last week. Consumers of practically every kind of Scrap are in the market. Shipments of Scrap are very heavy and would be still greater if it were possible to get cars for the purpose. The situation is nearly as bad on the rivers in this vicinity with respect to boats. In the present condition of trade holders are more disposed to retain the stock under their control than to dispose of it, believing that prices will be still higher. Quotations based on the conditions of the week are as follows for New York and vicinity per gross ton:

Old Iron Rails	$21.50 to $22.00
Relaying Rails	24.50 to 25.00
Old Steel Rails, rerolling lengths	16.50 to 17.00
Old Steel Rails, short pieces	16.25 to 16.50
Heavy Melting Steel Scrap	16.25 to 16.50
Old Iron Car Axles	23.00 to 24.00
Old Steel Car Axles	20.00 to 21.00
No. 1 Railroad Wrought	20.50 to 21.00
Iron Track Scrap	18.00 to 19.00
No. 1 Yard Wrought, long	18.50 to 19.50
No. 1 Yard Wrought, short	16.50 to 17.00
Wrought Pipe	15.00 to 15.50
Light Iron	11.50 to 12.00
Cast Borings	9.00 to 9.50
Wrought Turnings	12.50 to 13.50
Old Car Wheels	17.00 to 17.50
No. 1 Machinery Cast	14.50 to 15.50
Stove Plate	11.50 to 12.50
Malleable Cast	15.00 to 16.00

Metal Market.

NEW YORK, October 25, 1905.

Pig Tin.—The market has been very dull and fluctuations have been within a narrow limit, ranging from 32.55c. to 32.70c. The diminution in the volume of business is attributed to various sources, the chief one being the dullness characterizing the Tin Plate trade at present. Confirmation is now to be had regarding the Banca sale for 1906, which will be about equal to the quantity sold this year, or 1550 tons for each bi-monthly sale. This comes as an official report from Rotterdam to the New York Metal Exchange. It is confidently expected among the well informed that the arrivals at London for this month will be large. The arrivals at American ports amount to but 2415 tons so far this month, and there are 1515 tons afloat, but no large shipments are due for the next two weeks. Trade this month has been small, consequently the arrivals so far this month are expected to largely meet the demand for the entire month. The London cables to-day were lower, at £148 12s. 6d. for spot and £148 for futures. The American market, in sympathy, declined slightly to 32.60c.

Copper.—Business during the week, as during the month, has consisted only of small lots for immediate consumption. The price is unchanged at 16.62½c. for both Lake and Electrolytic and 16.37½c. for Casting grades. So far there has not been enough business in future deliveries to warrant any quotation for deliveries during the early part of next year. Considerable capital has been made of late regarding the purchases by Chinese interests. Some profess to believe that Chinese melters will take as much Copper next year as they have taken this year, and the other extreme believes that there will be no Copper used for Chinese coinage purposes and that the entire shipments this year will shortly find their way to either European or American markets. The true facts are hard to ascertain, but it is believed that one estimate is as far wrong as the other. In London spot Copper is lower at £71 15s. Futures are also lower at £70 5s. There has been more activity in that market than for some time past.

Spelter.—The export movement in Spelter does not bid fair to be very large, not over 2000 tons having been contracted for up to date. The margin of profit is small at the existing quotations in St. Louis and London; the exporters may have secured concessions from holders of American Spelter. In any event the market here is considerably stronger on a basis of 6.10c. St. Louis or 6.25c. New York. This is quite a contrast to the Ore market which has steadily declined and is $2 a ton lower than last week. In London Spelter is lower at £28 12s. 6d.

Pig Lead.—Spot Lead continues to be difficult to obtain, selling at from 5.20c. to 5.40c. Shipment Lead from the West can be obtained on a basis of 5.10c. St. Louis, or 5.25c. New York City. The American Smelting & Refining Company continues to accept orders at the price current on day of shipment. In London the market is slightly lower at £14. 17s. 6d. In the present excited state of the American

market it is worthy to note that stocks in England at the present time are at least 25,000 tons below those held at the corresponding time last year. This has been caused partially by light shipments from Spain and practically no imports from this side.

Antimony.—For the first time in several months there has been considerable business transacted in this metal, several small lots and at least one fair sized lot changing hands last week. The price is about the same as a week ago, Cookson's being quoted at 12.50c. to 13c.; Hallett's, 12.25c. to 12.50c.; other brands, 11.50c. to 12.25c.

Nickel.—The price is unchanged at 40c. to 45c. for large lots and 50c. to 55c. for smaller quantities. The principal holders of the metal have ample stocks to meet present requirements.

Quicksilver.—Flasks of 75 lbs., in 100-flask lots, are quoted at the old price of $40 per flask. In San Francisco domestic orders are held on a basis of $39, while the London market is likewise unchanged at £7 2s. 6d.

Tin Plate.—The situation at the mills is dull, but the consumption of Terne Plates continues in fair volume. The principal producer continues to quote 100-lb. IC Coke Plates on a basis of $3.49, f.o.b. New York, or $3.30, f.o.b. Pittsburgh. In Swansea, Welsh plates are higher at 13s. Some misunderstanding appears to have arisen regarding recent quotations on 100-lb. IC Coke Tin Plates. Early in September the base price, Pittsburgh, on these plates was $3.55. Later this was dropped 15 cents, making $3.40. Since then a further reduction of 10 cents a box has been made, which made the price $3.30, base, Pittsburgh, for this grade of Tin Plate, and which is the ruling price to-day.

New York Pig Iron Warrant Market.

There was a decided buying movement in the pig iron warrant market in the Produce Exchange during the week ending at noon to-day, and the trading in both warrants and warrant certificates resulted in a larger total sale than there has been in many weeks, the total trading amounting to 3000 tons. The sales were as follows: Warrants, 200 tons, December, Alabama No. 2, $13.25; 200 tons, gray forge, Alabama, $11.25; 200 tons, same, $11; 200 tons, same, $11.15; 200 tons, Alabama No. 2 foundry, $13; 100 tons, gray forge, Alabama, $11.25; certificates: 100 tons, October, regular, $15.95; 100 tons November, regular, $16.05; 100 tons, same, $16; 200 tons, October, regular, $16; 200 tons, same, $15.75; 700 tons, November foundry, $16; 200 tons, October foundry, $15.75; 100 tons, December, regular, $15.90; 100 tons, December foundry, $16; 100 tons, October foundry, $15.75. The following prices were established on call Wednesday noon:

	Regular.		Foundry	
	Bid.	Asked.	Bid.	Asked.
Cash	$15.75	$16.25	....	....
October	15.75	16.25	$15.85	$16.50
November	15.90	16.80	15.90	16.60
December	16.00	16.60	16.00	16.40
January	16.00	16.70	16.40	16.75
February	16.20	16.80	16.50	16.80
March	....	....	....	....

Iron and Industrial Stocks

NEW YORK, October 25, 1905.

Some interesting changes have occurred during the week. Common stocks among the industrials have been unusually active and some of them, notably Locomotive, have made new high records. Advances, however, are general. Allis-Chalmers common advanced from 17⅝ to 21½, and the preferred from 60 to 64¾; Can preferred, from 70½ to 72½; Car & Foundry common, from 37¾ to 43⅛; Locomotive common, from 63⅝ to 70⅝; Steel Foundries preferred, from 43½ to 47; Pressed Steel common, from 46⅛ to 53⅜; Railway Spring common, from 43½ to 47¼; Republic common, from 24¾ to 27⅛, and the preferred from 94⅛ to 98⅜; Sloss-Sheffield common, from 69 to 72¾; Tennessee Coal, from 85¼ to 90; United States Cast Iron Pipe common, from 37 to 39½; United States Steel common, from 37 to 39⅛, and the preferred from 103⅝ to 105¼. These stocks showed very much more activity and greater enhancement in values than the standard railroad stocks. Increasing ease in rates on money is given as the cause of the rise, assisted of course by the great activity in the railroad demand for equipment. Latest transactions in active stocks up to 1.30 p.m. to-day were reported at the following prices: Can common 11, preferred 72; Car & Foundry common 42, prefered 102¼; Locomotive common 70⅝, preferred 116½; Steel Foundries common 13½, preferred 46¾; Colorado Fuel 46; Pressed Steel common 53, preferred 101¼; Railway Spring common 46½; Republic common 26½; preferred 96⅜; Sloss-Sheffield common 72¼, preferred 122; Tennessee Coal 88¾; Cast Iron Pipe common 38¾, preferred 97; United States Steel common 38⅞, preferred 105½.

Dividends.—The Standard Sanitary Mfg. Company, Pittsburgh, manufacturer of plumbers' supplies, has declared a dividend of 1 per cent. on the common stock. The directors will meet again on October 31, when it is expected that a dividend of 1¾ per cent. on the preferred stock will be declared.

Pennsylvania Steel Company has declared a semiannual dividend of 3½ per cent. on the preferred stock, payable November 1.

The Republic Iron & Steel Company.

At a meeting of the directors of the Republic Iron & Steel Company last week S. G. Cooper was chosen president to succeed Alexis W. Thompson. Mr. Cooper has been identified with the iron trade all his life, having been connected with the Illinois Steel Company and later with Naylor & Co., the well-known merchants. Mr. Cooper upon withdrawing from the latter firm organized the firm of Banning & Cooper.

The directors of the company now are Charles S. Guthrie, Grant B. Schley, John W. Gates, L. C. Hanna, S. G. Cooper, E. W. Oglebay, George Sheldon, W. H. Hassinger, G. Watson French, C. Houston, J. F. Taylor, E. J. Berwind, George Baird, Alexis W. Thompson and H. Rubens. The Executive Committee consists of Charles S. Guthrie, chairman; Grant B. Schley, J. W. Gates, L. C. Hanna and S. G. Cooper. The annual report of the company is now in the hands of the Executive Committee and will probably be issued at an early date.

It is understood that some further improvements are contemplated at the Youngstown steel plant. A basic open hearth works will be put up. It has not yet been decided, however, whether a Talbot continuous furnace or a group of four stationary open hearth furnaces will be erected.

Missouri's Mineral Production.

Complete figures on the coal and mineral output of Missouri in the year 1904 have been given out by Labor Commissioner Anderson, Jefferson City, Mo. The total output was valued at $26,451,097. Included in this total are the following more important items: Zinc, $8,255,174; coal, $7,003,074; lead, $6,451,418; cobalt, nickel and other metals, $529,011.

Zinc ores show a product of 238,393 tons, which embrace 21,601 tons of silicates and carbonates. This is an increase of 45,368,000 pounds over 1903. The average price received for all grades of zinc for the year 1904 was $36.33 per ton. The silicates and carbonates averaged $17.50 per ton.

The lead ore product amounts to 135,026 tons, of which 1276 tons represent the dry bone mined. Of this total amount the Eastern district produced 103,682 tons, or 77.60 per cent. The latter ore does not average as well per ton in price as the Joplin or Western district, as it averaged but $45.61 per ton. The 30,068 tons of lead proper averaged in the Western district $56 per ton, while the 1276 tons of dry bone averaged $30.85 per ton.

A New South Wales Iron Industry.—The advertisement of the New South Wales Government in February for bids for the manufacture of iron and steel in that country brought one response, that of W. Sandford, of the Eskbank Iron Works. According to the conditions laid down the contract includes the manufacture, supply and delivery of all the pig iron and rolled steel and iron required by the Government of New South Wales for seven years. The contractor must establish within the State a blast furnace or furnaces, and erect all machinery and plant necessary for the conversion of iron ore into pig iron and rolled steel and iron, and capable of supplying all the materials included in the contract. Mr. Sandford has bound himself to use 100 per cent. of New South Wales iron ore, coal and limestone, and the schedule of prices submitted by him is under the average paid by the Government during the last seven years. If he secures the contract it will mean an expenditure of about $500,000 on new machinery and appliances at the Eskbank works. On a recent visit to the United States, England and the Continent Mr. Sandford purchased $50,000 worth of blast furnace equipment.

Trade Publications.

Steel Pipe and Cut Nails.—A pocket size pamphlet issued by the La Belle Iron Works, Steubenville, Ohio, presents a considerable volume of data relating to pipe and cut nails. The sizes of pipe manufactured include all the principal ones in line pipe and casing up to 12 inches in diameter, and the full line of merchant pipe, black and galvanized, is manufactured in sizes ⅛ inch to 12 inches, inclusive. Tables are given of the various sizes of pipe of all descriptions, including diameter, thickness, weight per foot, number of threads per inch of screw, &c. The merits of steel pipe as compared with iron pipe are discussed. Results of tests showing the holding power of cut nails as compared with wire nails are presented, the tests having been made under the direction of Major J. W. Reilly of the United States Ordnance Department at Watertown, Mass. This is the fifty-third year in the nail trade for the works at Steubenville. The pamphlet is illustrated with views of various departments of the La Belle Iron Works and photographic reproductions of cut nails of all sizes.

Power Transmission Machinery.—Dodge Mfg. Company, Mishawaka, Ind. Catalogue C-7. Size, 6 x 9 inches; pages, 416; cloth bound. This is a very complete catalogue of all the equipment which enters into the transmitting of power. It also embodies a large amount of data and useful information, making it an exceedingly useful reference book on the subject of power transmission. An introductory section contains views of the plant, interior and exterior, and of branch offices, attended with a description of shop facilities. An alphabetical telegraph code list runs through the entire book, which has been thoughtfully compiled to minimize the words necessary in sending orders. Certain combinations have been effected requiring but one code word to designate information that as ordinarily coded needs from eight to ten words. Everything in the way of pulleys, shafting, hangers, couplings, clutches, &c., is listed. There is also a comparison of the advantages of the American and English systems of rope transmission.

Precision Lathes.—Hardinge Bros., 1034 Lincoln avenue, Chicago, Ill. Catalogue, supplement and circulars. Catalogue describes the line of precision machinery and fine tools formerly made by the Cataract Tool & Optical Company, Buffalo, N. Y. Supplement deals with a new Cataract bench lathe, describing the construction of its essential parts in detail with a sectional line drawing. Circular shows Hardinge sensitive drill press and various attachments for precision machinery.

Lathes.—R. K. LeBlond Machine Tool Company, Cincinnati, Ohio. Catalogue. Size, 6 x 9 inches; pages, 30. Illustrates a line of quick change lathes, giving a general description of the construction and design, with numerous detail engravings of special parts. This is followed by views and specifications of the different sizes manufactured, these including 12, 14, 16, 18, 20, 22, 24, 27, 30 and 32 inch quick change engine lathes and a 32 to 36 inch triple geared engine lathe.

Milling Machines.—R. K. LeBlond Machine Tool Company, Cincinnati, Ohio. Catalogue. Size, 6 x 9 inches; pages, 89. Devoted to milling machines. Begins with a detailed description applying in general to the different sizes made and particularly dealing with the parts that are of special design. The succeeding pages give specifications of plain milling machines made in Nos. 0, 1, 1½, 2, 2½, 3, 4 and 5 sizes; universal milling machines made in Nos. 1, 1½, 2, 2½, 3 and 4 sizes, special machines, including a No. 1½ universal milling machine which feeds in all directions, a No. 3 single pulley miller and several motor drive applications. The remainder of the book deals with special attachments, including universal head, differential indexing device, special spiral cutting head, dividing head, spiral cutting attachment, gear cutting attachment, circular milling, rack cutting and vertical milling attachments, vises, &c. Hints on the care of millers are appended.

Tools, Machinery and Supplies.—Machinists' Supply Company, 16 South Canal street, Chicago, Ill. Catalogue. Size, 5¾ x 8½; pages, 628. Particularly issued in the interest of mail order business. Lists practically everything that may be considered standard in the way of tools, machinery and supplies. The goods handled are the products of representative manufacturers.

Radiators.—Shirley Radiator & Foundry Company, Indianapolis, Ind. Pamphlet. Shows a line of two and three column sectional cast iron radiators, window radiators and direct-indirect radiators, with or without box base.

Foundry Job Work.—Rock River Mfg. Company, Dixon, Ill. Catalogue. Illustrates specimens of the variety of job work undertaken.

Gas and Gasoline Engines.—Stover Engine Works, Freeport, Ill. Catalogue. Pertains to the Stover gas and gasoline engine, which operates on the four-cycle principle. The governor automatically regulates the supply of fuel and when the speed increases above normal shuts off the feed and opens the exhaust valve. Engines are made in sizes of from 2 to 20 horse-power; in vertical pattern up to 5 horse-power, and horizontal pattern from 5 horse-power up for stationary or portable mounting and may be used to operate pumps or other machinery.

Corrugated Concrete Piles.—Corrugated Concrete Piles Company, New York. Pamphlet. Deals with the advantages of concrete piles in general and the corrugated concrete piles in particular. They are made with a hollow core, through which a jet is passed in driving them, a pile driver being used only for the final settling.

Wire Machinery.—Alton Machine Company, 126 Liberty street, New York City. Bulletins 62 and 79. The first illustrates an 18-drum stranding machine and the second a 6-reel stranding machine for laying up large cable.

Turret Lathe Tools.—Cleveland Twist Drill Company, Cleveland, Ohio. Catalogue. Confined to tools which are especially designed for turret lathes and screw machines. These tools include oil tube drills, chucking reamers, shell reamers and steel reamer arbors and a special turret holder for holding the shanks of the tools.

Steam and Oil Separators.—Warren, Webster & Co., Camden, N. J. Folder. Pertains to Webster steam separators and Webster oil separators.

Hoisting and Conveying Machinery.—Robins Conveying Belt Company, Park Row Building, New York. Bulletin 12. Describes and illustrates Robins conveying and hoisting machinery for power stations. Engravings show a number of notable installations of coal and ash handling equipment, including those for the power house for the New York Subway, power house of the Brooklyn Heights Railroad Company, Edison Electric Illuminating Company of Boston and the Kingsbridge power plant of the Metropolitan Street Railway Company of New York.

Storage Batteries.—National Battery Company, Buffalo, N. Y. Bulletin 2. Deals with electric storage batteries for line voltage regulation on a water-power system and describes the installation of "Unit Accumulators" for the Syracuse & Suburban Railroad Company, Syracuse, N. Y.

Tube Mills.—Thomas Prosser & Son, 15 Gold street, New York City. Circular G-3. Contains an account of the Krupp patent tube mills, with continuous feed and discharge for grinding all materials. The above concern is the American representative.

Steel Sheet Piling.—United States Steel Piling Company, 135 Adams street, Chicago, Ill. Pamphlet. Describes the nature of the piling and its applicability to all kinds of contracting work.

Rope.—C. W. Hunt Company, West New Brighton, S. I., New York. Pamphlet 059. Refers particularly to Hunt's plumbago laid Manila rope for transmitting power, pile driving and hoisting.

As a result of a special meeting of the local iron molders' union at Cleveland a communication was sent to the Cleveland Founders' Association in September requesting a conference with the union officers regarding the proposal to establish a nine-hour day in Cleveland machinery foundries. The association held a meeting September 26 and sent the following note to the representative of the union: "At a meeting held by the Cleveland Founders' Association it was the unanimous opinion that they would not grant a shorter work day to the molders at the present time. Therefore it would be useless to appoint a committee to meet a committee from your union to discuss the question." There have been no recent developments in the matter.

The members of the Engineers' Society of Pittsburgh on October 28 will be the guests of Mackintosh, Hemphill & Co. of that city on a visit to the South Sharon Works of the Carnegie Steel Company to inspect the six large blowing engines built and installed at this plant by the firm mentioned. These consist of six pairs of cross compound blowing engines, with cylinders 30 and 60 and 60 x 72 inches, each engine delivering 30,000 feet of free air per minute, with a normal pressure of 18 pounds to the square inch. It is stated that this engine plant is one of the most complete in the country.

The E. W. Bliss Company held its annual stockholders' meeting October 20, at the offices of the company, Adams and Plymouth streets, Brooklyn, N. Y., and elected the following directors for the ensuing year: J. W. Lane, F. C. B. Page, W. J. Grinden, W. B. Bailey, W. H. Truesdale, Seth L. Keeney, Chauncey Marshall, F. M. Leavitt, A. Wilzin, W. E. Murdock, J. J. Flynn, F. D. MacKay, T. B. Kent. Immediately after the stockholders' meeting the directors elected the following officers: President, J. W. Lane; vice-president, F. C. B. Page; second vice-president, W. J. Grinden; secretary, H. C. Seaman; treasurer, L. H. Gould.

The Machinery Trade.

NEW YORK, October 25, 1905.

The machinery trade in this section could hardly be in a more prosperous condition than it is at the present time, with a large volume of orders in hand taxing the capacity of the plants and numerous inquiries, some of fairly large proportions. For the past few weeks the entrance of large machine tool lists were few and far between, but the week under review has seen a reversal of this condition, the feature of the market being the issuance of several lists. One of the large railroads is asking preliminary bids on a good sized amount of machinery equipment which it is thought will be purchased shortly after the first of the year. Another railroad has inquiries in the market for a medium lot of tools, while two industrial corporations are asking figures on a large amount of machinery. The more important of the latter two lists is the one issued by the Allis-Chalmers Company and which is referred to in more detail in our Chicago market. A part of this list will undoubtedly be closed in the West, but it is likely that this territory will secure the major portion, as more than half the amount covers the heaviest machine tools and Eastern builders are among the most active bidders.

Following the lead of the Brown & Sharpe Mfg. Company and the Cincinnati Milling Machine Company manufacturers of milling machines generally have advanced prices from 5 to 10 per cent.

The membership of the National Machine Tool Builders' Association has been increased by the admission of the following new members: Rivett Lathe Mfg. Company, Boston, Mass.; Hoefer Mfg. Company, Freeport, Ill.; National-Acme Mfg. Company, Cleveland, Ohio; I. H. Johnson, Jr., Company, Philadelphia, Pa., and the Chandler Planer Company, Ayer, Mass.

According to statements given out during the week the German custom tariffs, which we stated last week would affect the machinery trade to some extent, will undoubtedly result in some changes in prices in certain lines. It is stated, for instance, that the rates on steam engines and motors of all kinds will be materially advanced, and motive machinery coming from countries not enjoying the convention rates will be subject to duties as high as 50 per cent. ad valorem, while that coming from favored nations will pay duties ranging from 5½ to 35 per cent. ad valorem.

Work has been begun on the old Steinway tunnel under the East River at Forty-second street, through which the August Belmont traction interests expect to establish direct connections between the New York subways and the trolleys and other surface lines of Queens County. It will be remembered that in furtherance of that scheme all the important traction lines in the western end of Long Island were merged some time ago. It is understood that all the difficulties in the way of preliminary permits have been overcome and work on the tunnel has actually been commenced. The trade can no doubt look for some particularly good buying for the construction work in the near future, as a vast amount of construction machinery as well as material will be required.

Large Prospective Purchases by New York Central Lines

While it is the general opinion that the railroads will not place orders for large lots of machinery until after January 1, it is thought that shortly after that date many of them will make extensive purchases. The large business of the past year has necessitated a great increase in motive power equipment, to take care of which the shops of most of the railroads are inadequately equipped. Plans are already being laid down to supply this deficiency in many instances, while in some cases the improvements are about to be begun. The most important of the large prospective purchasers are the Vanderbilt lines, more commonly spoken of as the New York Central lines, which include the New York Central & Hudson River, West Shore, Lake Shore & Michigan Southern and the Michigan Central railroads. The officials of these lines have for a long time been preparing plans for extensive improvements in all of the mechanical departments and now these plans have matured to the point where they will become operative within a short time. The plans include extensive enlargement of shop and yard facilities, which the New York Central Railroad is particularly in need of. To carry out their plans the lines will spend several millions of dollars, a large part of which will be expended for mechanical equipment. During the past year these lines have purchased upward of $1,000,000 worth of machine tools. It is the intention to bring the machinery equipment of the various shops up to date and to accomplish this the officials will expend about $5,000,000 during 1906 for machine tools, which will be the biggest year in the way of machine tool purchases. As the New York Central Railroad's equipment is in a poorer condition than that of the other roads it is likely that that road will receive the greater portion of the tools bought. The Central will make important improvements at West Albany, Buffalo, Peekskill, Mt. Vernon, and White Plains, N. Y. In addition to the tools to be purchased for the shops and yards the New York Central will in all probability buy extensively for the carrying out of its scheme to electrify its road for suburban travel. Next in importance in the way of mechanical requirements will be those of the Michigan Central Railroad, which is to construct a tunnel under the Detroit River. This tunnel will be similar to those of the Pennsylvania Railroad under the North and East rivers and will necessitate the purchase of a large amount of machinery. The Board of Engineers having this work in hand is understood to have the plans well advanced and within the next three or four months it is thought the contracts will be ready to be let.

Machine Tool Lists.

The New York, New Haven & Hartford Railroad has sent out from its Norwood shops a preliminary list of machine tools which it is thought will be bought shortly after the first of the year. It is understood that the company expects to install the machinery at various points in the vicinity of Norwood, which is a suburb of Boston, and the list does not include the machinery that will be required for the new shops to be built at Norwood, plans for which are well under way. The shops in question, it is said, will cost about $1,000,000, and the plant will be an extensive one. The company expects to manufacture locomotives there as well as make repairs of all sorts to its equipment, and the shops will be much more extensive than the usual plant of the kind. It is understood that all difficulties in the way of the scheme have been disposed of, and it has been authoritatively stated that the shops will be built in the very near future. The company now maintains a number of small shops scattered along its line in the vicinity of Boston, which will in all probability be abandoned when the Norwood shops are built, and only those which can be used as adjuncts to locomotive roundhouses will be retained. The present plant at Norwood is an old one, and of late years a number of small shops near Boston have been concentrated there, so that the company already has a fairly substantial repair plant at that point, although it is by no means up to date. It is not improbable that the machinery called for in the preliminary estimates now before the trade is to bring that and other nearby plants more up to date, as it is hardly extensive enough to provide for the improvements planned for that point.

The Ridgway Machine Tool Company, Ridgway, Pa., has inquiries in the market for a lot of medium sized machine tools aggregating in value about $20,000. The company builds heavy tools only and has found the demand for its products so heavy that it is necessary to increase its equipment.

The Pennsylvania Railroad Company is experiencing with the general public a great deal of difficulty in obtaining material of all kinds. This is particularly true of the structural steel situation. Quick purchases are being made in other directions; two of the five 10-ton cranes for which the purchasing department made inquiries last week were obtained from stock, and the company is now in the market for three air compressors of large capacity for various points on the system. With a view to determining the value of the steel car for railroad purposes, concerning which much has been recently published, the purchasing department is now obtaining material which will enter into the construction of one postal car, one baggage car and one passenger car, which will be constructed at Altoona car shops and upon the success of which no doubt will hinge the ultimate use of cars of this type. Superstructure for new overhead bridge west of Paoli, single span, highway over four tracks, and switchboard, each for Glenolden water station power house and Glenolden water station pump works, are the only new inquiries which have been made this week.

Other Machinery Requirements.

Mugler's Iron Works, 420 East 108th street, New York, will require considerable new machinery for the new plant it is to erect on a site of ten lots bounded by 136th and 137th streets, New York Central Railroad and the East River, which it recently purchased. Upon this property the company will immediately erect a two-story building 50 x 100 feet, the foundation to be laid for a five-story structure. The building will be constructed entirely of iron on the inside and will be equipped with the latest improved machinery, elevator, &c., none of which has as yet been purchased. The company states that it will be a month or so before it will be ready to consider the purchase of machinery. It will cost about $12,000. The company manufactures interior iron work for buildings.

We understand that the Great Northern Railroad contemplates the erection of extensive shops at Minneapolis, Minn.

The car repair shops of the Lake Shore Railway, at Perry and Van Renseller streets, Buffalo, N. Y., which were closed several years ago when the West Seneca shops of that company were built, are to be opened. Considerable new machinery will be installed and the shops when in readiness will give employment to 600 men.

The American Locomotive Company, New York, is preparing to erect a large addition to its Brooks Works at Dunkirk, N. Y. It is understood that the addition is to be used as a boiler shop and the present boiler shop is to be turned into a machine shop. The details of the plans are in the hands of the engineers at the Brooks Works and details are lacking at the New York office of the company, but it is said that the new shop will be about 900 feet long and is to be located on a plot of ground adjoining the new steel foundry. The equipping of the new shop, together with the fitting out of the present boiler shop as a machine shop, will entail the purchasing of a large amount of machinery, and the trade can probably look for a substantial list from the Dunkirk shops in the near future. It is known that no machinery has been bought as yet for the proposed improvements, as the last list sent out by the company was for fitting up its new automobile plant.

Large additions are being made to the plant of the Schoen Steel Wheel Company, McKees Rocks, Pittsburgh, which will be completed in December. Plans are under way by this concern for doubling the capacity of its plant in the manufacture of car wheels. Charles T. Schoen, president of the company, states that demand for steel car wheels is enormously heavy and that $500,000 has been spent by his concern in improvements this year and that he fully expects it will spend $1,000,000 in betterments next year.

The railroads have been placing quite a few orders the past few weeks. The Chicago Pneumatic Tool Company, New York, has received substantial orders for air compressors from the Pennsylvania, Louisville & Nashville and Rock Island railroads, also from several of the large packing houses.

The C. H. Curtiss Mfg. Company, Hammondsport, N. Y., manufacturer of motor cycles, motors and accessories, which recently incorporated its business with a capital stock of $40,000, intends to enlarge its plant and will add a number of lathes, drill presses and other machines to its equipment.

The new plant which the Canadian Fairbanks Company, Montreal, Canada, is building at Toronto, Canada, is nearly completed. The plant, which will be devoted to the manufacture of Fairbanks-Morse gas and gasoline engines, steam pumps, railroad hand cars and stand pipes, will consist of four buildings of reinforced concrete construction—namely, a machine shop, 100 x 265 feet, with galleries 26 feet wide on each side for light work; foundry, 72 x 130 feet; blacksmith shop, 72 x 98 feet, and power house, 60 x 80 feet. The equipment has about all been purchased, the machine shop equipment to be furnished by John Bertram & Sons Company, Dundas, Ont., which was recently acquired by the Niles-Bement-Pond Company, New York. The Niles-Bement-Pond Company has also secured the order for the traveling cranes. The power house will be equipped with two 150 horse-power producer gas engines of Fairbanks-Morse make, and the heating apparatus will be furnished by the B. F. Sturtevant Company, Hyde Park, Mass. H. J. Fuller is president.

Milliken Brothers, 11 Broadway, have obtained the general contract for the construction of the New Denchada Hotel at New Orleans. The building will be one of the largest of its kind in the city and will cater to winter tourists. It will have about 250 rooms, and the cost will be about $400,000. Milliken Brothers' contract includes the elevators and the power plant, which will necessarily be a large one.

Philadelphia Machinery Market.

PHILADELPHIA, Pa., October 24, 1905.

The market for machinery and tools continues to hold its own in nearly all branches of the trade. Orders are being received in good volume but are still of the same scattered nature that has characterized this market for some months past. Additional business from local and Southern railroads has been placed during the past week, but the aggregate amount was not large and covered, no doubt, only immediate needs rather than any portion of the extensive equipment for which specifications have been on the market for some time, orders for which it is now thought by some of the trade will be delayed for several months.

The recent demand has been fairly well divided among all classes of tools. A good quantity of the smaller tools has been taken by various customers, while the sale of tools of the heavier type has brought the aggregate business up to good proportions.

The inability of manufacturers to make prompt deliveries on many sizes and classes of tools is one of the most important features of the trade at this time. Lathe builders are in some instances unable to deliver tools in periods varying from 30 days to five months, the most desirable sizes being the most difficult to obtain. Lathes of some makes ranging in size from 12 to 18 inches are not to be had inside of three months, and as the sizes increase so also does the time of delivery. The same condition governs in many cases deliveries of boring mills and radial drills, while special tools can be supplied—particularly if they are of the heavy types—only o[illegible] conditions have brought ou[illegible] and machinery and tools, in w[illegible] s frequently found to supply, if at least [illegible] arily, the immediate needs of the buyer, and dealers in this class of tools attribute no small share of their increased business to this source.

There has been little change in the foreign demand. Manufacturers doing an established trade in special lines abroad are receiving a good volume of business, but could handle a greater. The foreign demand for machine tools has not increased, however, to any marked extent, but it is expected that some very satisfactory business will develop from this source before a great while. The foreign demand for molding machines for foundry purposes is improving and manufacturers of these report additional sales.

The demand for engines and boilers both of the heavy and lighter types has improved and manufacturers are generally busy. Machine shop supplies are being taken in good quantity and in some cases are hard to be had promptly.

Foundry conditions remain unchanged. Gray iron foundries as well as steel casting plants are generally busy and for the most part have as much work on hand as they can conveniently handle. Jobbing foundries could in instances handle more tonnage and for some classes of work there is plenty of sharp competition.

The Hub Machine & Tool Company, Philadelphia, has acquired the plant, good will and business of the Hazelton & Donald Machine Company of 612-614 Discount place, Philadelphia, and will continue to carry on the manufacture of metal saw tables, surface plate sets and other specialties, as well as general machine work. The company has engaged the services of Andrew Donald, late of that company, who will be actively associated with it. With the acquisition of this plant, which consists of three floors, the company is better able to give prompt delivery.

The Vandyck Churchill Company, with local offices in the Philadelphia Bourse, has acquired an additional warehouse at 211 Chancellor street, which will double its storage facilities in this city. This company has taken on considerable new business during the past few weeks, including railway shop and general tool equipment, and from the nature of inquiries being received looks forward to a continued active business.

The Falkenau-Sinclair Company will on November 15, at its works, Twenty-second and Arch streets, in this city, dispose of its entire machine tool equipment, stock of small tools and general shop equipment at auction sale. This company decided some time since to discontinue business and take the above means to close up its affairs. Catalogues containing full information regarding the sale may be obtained from the company.

The Philadelphia Foundry & Machine Company has sold all of the foundry equipment and machinery of its plant at Thirtieth and Grays Ferry avenue, and has disposed of the ground to the Pennsylvania Railroad Company. The property, which measures 200 x 600 feet, will be used for a freight yard. The business of the Philadelphia Foundry & Machine Company will be discontinued and closed up.

The Tindel Morris Company, Eddystone, Pa., has appointed J. W. Cregar general sales manager, with offices on the Bourse Machinery Floor, Philadelphia, Pa. Mr. Cregar will have charge of the general engineering business of the Tindel Morris Company as well as the selling of its special high duty saws, crank shaft lathes, rotary planers, &c. The company intends to devote its Eddystone, Pa., plant largely to the manufacture of these tools and to the finishing of automobile, gas engine and marine crank shafts, its forging business being to a greater extent confined to its Elwood City plant. The company has taken a number of orders recently for high duty saws as well as for various special tools, one of the latter, a large double rotary slotting machine with Tindel high duty saws for slotting connecting rod straps, links, &c., being recently shipped to the Paterson plant of the American Locomotive Company.

The Standard Pressed Steel Company, manufacturer of the American Pioneer pressed steel shaft hanger, notes a marked increase in the demand, both from foreign and domestic sources, and a good number of orders have been taken, including one for thirty-six 2 7-16 x 20 inch drop hangers for direct equipment in the shops of the American Machine & Foundry Company, Brooklyn, N. Y.; another for twenty-seven 2 15-16 x 18 inch, twenty-two 1 15-16 x 18 inch and four 1 15-16 x 12 inch for direct equipment in the plant of the Robbing Lumber Company, Rhinelander, Wis., while sixteen 2 15-16 x 18 inch are to be installed in a factory in St. Paul, Minn. The local demand for these hangers has been particularly good, while extensive shipments have been made to agents in various parts of this country as well as abroad.

The Philadelphia Roll & Machine Company is very busy. There is a heavy demand for both sand and chilled rolls, and all departments of its plant are being operated at full capacity. Recent orders include several for heavy sand rolls up to 15 tons each, and for a number of chilled rolls, both finished and in the rough. An order has also been received for two 28-inch plate rolling mills, complete, with two sets

of rolls. Recent deliveries on rolls by this concern have been quite extensive and include shipments to many of the large steel and iron mills.

The Hilles & Jones Company, Wilmington, Del., is running its plant on double turn to accommodate its customers for early delivery, which is an important item in many of its contracts. The company has had a heavy demand for its tools from steel car manufacturers, railroads and structural shops and also notes an increased demand for tools for use in boiler shops.

The Tabor Mfg. Company, manufacturer of molding machines, is busy in all departments. The demand for molding machines, both for foreign and domestic deliveries, has been large, and a good volume of business has been taken. A 30 x 48 inch split pattern power ramming machine and an 8-inch power rammer have been shipped for export, and orders are in hand for several other machines for foreign delivery. Six 12-inch power ramming machines and six 16-inch power ramming machines of the vibrator frame type have been furnished among others for parties in the Middle West. This company also notes an increased demand for Taylor-Newbold cold saws, two 20, four 24 and one each of 30, 40 and 60 inch diameter, having recently been shipped to parties in Pennsylvania and New York State.

Chicago Machinery Market.

CHICAGO, ILL., October 24, 1905.

Notwithstanding the action taken at the meeting of the National Machine Tool Builders' Association last week a number of leading manufacturers in the East and several located in this territory have advanced prices during the week. Two manufacturers of milling machines have made advances averaging about 5 per cent. on the various types of machines and several builders of planers have advanced their lists 3 per cent. These seems to be no unanimity of action on radial drills, one manufacturer having made an advance of 15 per cent., this being the maximum, as the average advance is not over 5 per cent. No advance has yet been made on lathes, although one is expected at an early date. The advances now being put into effect are the first that have been made in nearly all lines since July, 1903. Almost immediately following the advance in that year the depression in the iron and steel trade so affected the machine tool business that very little machinery was sold at the high prices, and lists were revised from time to time until they reached the present basis. The large increase in the demand for all kinds of castings, including gray iron for implement works and steel and malleable for railroad purposes, is taxing the capacity of the foundries throughout this territory. Notable additions are already being made to several plants and a number of foundrymen are figuring on increasing their capacity. The demand for foundry equipment has consequently improved and with the increased output the machine shop equipment will necessarily have to be added to. Demand for big tools is better than it has been for some time, railroads having been the largest buyers during the summer months. The buying now is more diversified and includes practically all lines. There is no falling off in the demand for second-hand machinery and dealers are experiencing much difficulty in securing desirable tools. On account of the high prices that are being offered manufacturing concerns having second-hand equipment are selling direct to consumers instead of through dealers, which to some extent accounts for the depletion of stocks.

Allis-Chalmers Machinery Requirements.

The Allis-Chalmers Company is now figuring on the equipment for the new works it is erecting at West Allis, in Milwaukee, Wis. The cost of the machinery required will aggregate $150,000 and lists have already been sent the machinery dealers. In addition to this list the company is receiving preliminary estimates from important companies in the East on about $200,000 worth of extra heavy machine tools. No definite date has been fixed for closing these purchases and it is doubtful whether the contracts will be placed before the first of the year.

The Greenville Gas & Gasoline Engine Company, Greenville, Mich., has been organized and expects to be ready by early spring to put engines on the market of from 2 to 30 horse-power. The company requires a complete equipment necessary to the manufacture of gas and gasoline engines, including transmission machinery and small tools. E. Rutan is president, A. A. Karcher vice-president and T. I. Phelps secretary and treasurer.

The National Cash Register Company, Dayton, Ohio, will expend about $1,000,000 in the extension of its plant. Plans are not yet sufficiently advanced to give machinery and power requirements.

Williams & Miller, Beaverdam, Ky., are in the market for an electric welding machine.

The Andrew P. Korstad Boiler Company, Terre Haute, Ind., which was established in 1891, has incorporated. The company will erect a new plant for the manufacture and repair of boilers.

The United States Gold Corporation, Boulder, Col., expects to be in the market for a large amount of machinery to equip its Sugar Loaf group of properties in the year 1906. It has not been decided whether to equip the properties with air compressor drills or electric power drills.

McDowell, Stocker & Co., dealers in new and second-hand machinery, Chicago, last week shipped two carloads of miscellaneous machinery, including lathes, drills, shapers, planers, &c., to L. Kisel & Sons, Hartford, Wis.

Power Equipment.

Walter E. Johnson, 163 East Randolph street, Chicago, is in the market for a 100 to 125 horse-power boiler, engine of same capacity, heater and feed pump, double cylinder hoist of 2 to 3 tons capacity, air compressor and electric motor.

The Breese Water & Light Company, Breese, Ill., will receive bids until October 30 on the entire equipment for a central lighting plant.

The Business Men's Association of Louisiana, Mo., is building a three-story shoe factory, 45 x 120 feet, which will be equipped with a sprinkler system, elevators, heating plant, an 80 horse-power boiler and a 40 horse-power engine. Bids will be advertised for in a short time on this work.

Weisel & Kock, Parral, Mexico, have been awarded contract by Pedro Alvarado for installing a new 1000 horse-power electric power plant at his Palmilla mine. The boilers are to be of the high pressure kind and the engine will be a tandem compound Corliss type, with direct connected 700-kw. alternating current generators.

Cincinnati Machinery Market.

CINCINNATI, OHIO, October 24, 1905.

With builders of machine tools a large percentage have found October a great deal heavier, as far as new business is concerned than any preceding month of this year. Very little expansion is being premeditated, all energies being concentrated in making deliveries as rapidly as possible consistent with first-class manufacture. Foreign inquiry is showing a steady development and is a very important factor in the continued activity among the shops.

Among the new companies recently incorporated is the Cincinnati Wire Bound Box Company, with a capital of $200,000. James C. Marshall is secretary and treasurer, with headquarters in the First National Bank Building, this city. A new location is now being sought, which will no doubt be secured within the next week or two. Active operations in this case means the production of wire bound packing boxes in commercial quantities. The company will install a number of special machines for the manufacture of these boxes, and will probably require some additional machinery in the way of electric motors for special drives, which it will use in addition to regular shaft power.

The I. & E. Greenwald Company reports an extraordinary heavy trade in the way of gears, in fact larger than ever in the history of the concern. Considerable new engine building is also developing, and it is now estimating on several large contracts.

The Bickford Drill & Tool Company has recently made changes in several tools which it anticipates will prove to be veritable trade catchers. General trade is excellent and it is having all it can do in the shape of new business.

The Hisey-Wolf Machine Company has just installed a new 22 x 24 Flaherty planer, made necessary by the increased volume of business since moving to present location. Foreign trade is reported to be much improved.

The Rahn-Mayer-Carpenter Company has been engaged for some weeks in rearranging its tools and adding a number of additional machines. Business is reported as first class, which makes it almost impossible to accumulate any stock to speak of.

The Cincinnati Machine Tool Company is in line with the other concerns and reports an active condition of trade. The two grinders recently installed are proving of great benefit in the manufacture of the columns used in building its particular kind of drill and gives a finish never before attempted.

The Cincinnati Milling Machine Company's new addition is practically completed, and the work of rearranging machinery, &c., is now under way. The additional floor space thus obtained will be of paramount benefit, as trade during the last few months has increased largely and extra facilities were demanded to accommodate it.

The Champion Tool Works says that conditions are very satisfactory, and considerable new business has been booked during the past month. Shipments are being made regularly, lathes of the sizes that it builds being in good demand.

New England Machinery Market.

WORCESTER, MASS., October 24, 1905.

Naturally the meeting of the National Machine Tool Builders' Association has been the chief topic of discussion in the trade during the past week. Much disappointment is expressed that some definite agreement was not reached in the matter of advancing prices, for no one disagrees that something should be done to bring the business up to the same margin of profit which prevailed before materials and wages began their sharp advance. The machinery dealers and, of course, the manufacturers themselves are deeply interested in the action of the association in voting to grant exclusive territorial rights to the dealers, a concession which the committee of the dealers requested. This action means that hereafter no dealer will have the right to sell the tools of members of the association to a customer located in the district apportioned to another dealer, and if such a sale be made the dealer holding the territory will be entitled to the commission. In other words, a Philadelphia dealer cannot sell to a customer in the New York district, and *vice versa*. The relations between the manufacturer and the commission house have always been more or less complicated by the lapping over of territories covered by their agents, the manufacturer being compelled to become the umpire of disputes as to whom the commission belongs. The action of the association will obviate a good deal of this trouble, though not all of it, yet it will not work wholly for the interest of the manufacturer. But, on the whole, the machine tool builders seem well satisfied that the question of territorial rights has been officially settled.

In spite of unexpected elements which entered into the meeting of the National Association which forbade formal action in the matter of advancing prices at this time it was by no means settled that increased schedules will not follow. As stated in *The Iron Age* of last week, the question was referred to each section of the association representing the different classes of tools, each to act for itself. The builders of milling machines practically agreed to an advance before the meeting adjourned, following along the new schedule of the Brown & Sharpe Mfg. Company, Providence, R. I., and the Cincinnati Milling Machine Company, Cincinnati, which companies, as stated in this column in last week's issue, have advanced their prices, the amount varying from $50 to $75, according to the base price of the machine, the percentage of increase being close to 10 per cent. It is expected that practically all, if not all, of the builders of this class of tool will have made a similar increase within a few days or weeks.

The planer builders have taken no formal action as yet and it is not expected that they will do so for some little time. The fact is that there has already been a considerable stiffening of prices of planers, in some cases amounting to 5 per cent., and probably an average would be close to this figure. It is expected that this section of the association will get together in the near future to discuss an advance, with a strong probability that favorable action will be taken. So far as can be learned no action has been taken by the drill builders or any of the miscellaneous lines of tools, but there seems to be a general agreement that something should be done in the face of increased cost of production

The lathe section adopted a schedule regulating the price of geared heads. A temporary list was adopted for equipping lathes to take motor drive. There has been a diversity of prices for motor drives and little or no profit has resulted in many instances. This list is supplemental to that of other extras which was included in the original agreement of two years ago. As for the regular line of lathes, nothing was done in the way of prices. No one disagrees that an advance would be only fair to the manufacturers, but, as stated, unexpected elements entered into the consideration of the subject of lathe prices in common with other classes of tools. The subject of a list of extras for geared heads was not disposed of.

The effect of the removal of the Russian tariff on American machinery is already felt in New England. There is a renewal of inquiries from dealers in the Russian centers which indicate immediate orders, and a number of the New England machine tool builders and manufacturers of other lines of equipment are receiving invitations from Russian dealers to place agencies in their hands, these letters holding out strong promise of good business. It is stated that some orders were received by cable immediately upon the announcement of the removal of the tariff.

Manufacturers and dealers in machine tools complain of the working of the system of purchasing equipment for the navy yards of New England, and unofficially those in authority at the yards appear to agree that the procuring of suitable equipment of the various departments, excepting the ordnance department, is sometimes seriously interfered with by the substitution of tools and other accessories for those which are named in the specifications. As a result, the shops, power plants and other important departments of the works are not as efficient as they would be were the system of the War Department in the equipment of the arsenals carried out, and neither is the Navy Department system so economical, it is claimed. The trouble is with the system of bids. They may be either "as called for by the specifications," or "as modified specifications," or "as substitute specifications." The specifications define clearly the type of machine required, but substitute specifications may be submitted providing for a machine of entirely different purpose, with far less capacity and generally of less price. At Washington, it is claimed, the lesser price is almost universally selected, which means that a substitute bid has been accepted and the navy yard does not get what it asked for, in other words, what it needs. The War Department, on the other hand, permits substitute or modified specifications, but requires that the substituted machine must be at least the equal of that called for in the specifications. Were these complaints based entirely upon the contentions of dealers or manufacturers they might be laid to prejudice engendered by unsuccessful bids. But the navy yard officials themselves, especially those connected with the departments of Construction and Repair, Steam Engineering and Yards and Docks, feel that the yards are seriously handicapped by the fact that in many instances the substituted tools are not designed for the work required. They point out that there is doubtful economy, even in the matter of initial cost, in not a few cases, for machines have to be changed over and accessories altered, bringing the additional expense above the amount saved by accepting the lowest bid. The trouble lies in lack of co-operation between the yards and the authorities at Washington, which appears to be impossible under the present system. This is no new complaint, but of late instances have been sufficiently numerous to bring the matter to an unusual degree of attention.

The Crompton & Knowles Loom Works, Worcester, Mass., are to erect a new shop building at the Grand street plant to be 59 x 150 feet and five stories. The building will be used for manufacturing purposes. A new power plant to generate 500 horse-power will be established in the building.

The Robb-Mumford Boiler Company, which will manufacture the Robb-Mumford boiler under American rights, has progressed on its new plant at South Framingham, Mass., and expects to begin manufacturing within a few weeks.

The Boston Gear Works, 152 Purchase street, Boston, will establish new shops at Norfolk Downs, a suburb of Boston. A new building will be erected to be 90 x 126 feet and one story, excepting that a second story will be given the office end of the building.

It is understood that an agreement has been reached between the City of Cambridge and the Boston Elevated Railway by which, instead of the one four-track subway connecting Boston and Cambridge, as asked by the City of Cambridge, two two-track subways will be constructed, one from Harvard square to the Craigie bridge, the other through Massachusetts avenue to Harvard bridge, in each instance entering the business section of Boston by other subways. Only the Massachusetts avenue subway will be built immediately, according to the agreement, but the Craigie bridge subway must be erected within 10 years under penalty of forfeiture on the part of the Elevated Company of valuable franchise rights in Cambridge. The latter city contains the homes of many thousands of men and women whose places of business and employment are in Boston, and the present facilities for interurban transportation are not equal to the demand, to say nothing of the future growth of Cambridge and the places beyond it. The two subways should solve the problem for some years to come.

The Worcester Steel Foundry Company, Worcester, Mass., has established offices in the Exchange Building in that city, the business end of the management being separated from the foundry at Millbury, Mass.

The Borough Electric Works, the municipal plant of Wallingford, Conn., has acquired a water power which it proposes to develop within the next year or two. When the decision is made water wheels, generators and other equipment will be required. A. L. Pierce is the superintendent, manager and electrical engineer of the works.

The Gillette Safety Razor Company, Boston, Mass., has acquired the property occupied by it as a factory and also an adjoining lot of land, both estates being on West First street, South Boston. It is the company's plan to duplicate the five-story brick building now occupied by the erection of a new factory on the recently acquired land, to be about 160 x 180 feet and five stories. It will be devoted to manufacturing.

The Grays Harbor Steel Company.—The Crucible Steel Company of America, Pittsburgh, has disposed of some of its equipment in its Beaver Falls Works, at Beaver Falls, Pa., to a new company, to be known as the Grays Harbor Steel Company, which will build a plant at Grays Harbor, Wash., to manufacture crucible steel under a new process invented by John Barrett, New Brighton, Pa. It is said that the plant will be a modern one, and it is claimed that the process by which it will manufacture steel will very materially reduce the cost of production.

Government Purchases.

WASHINGTON, D. C., October 24, 1905.

The Isthmian Canal Commission will soon call for bids for the equipment of a planing mill, consisting of one blind wirer, one feed knife grinder, one 30-inch double cylinder planer and matcher, one 24-inch surface planing machine, one wood worker and molder, one tenoning machine, one 38-inch wheel band saw, one automatic saw setting machine, one rip saw, one saw and dado machine, one 20-inch lathe, one blind slat tenoning machine, one power mortising and boring machine, one friezing or shaping machine, one chain saw mortiser, one automatic blind stile borer and mortiser, one 100 horse-power engine, &c.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until November 28 for a quantity of supplies for the Mare Island and Puget Sound yards, including schedule 200, drills, sand belt machine and Cincinnati drill.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until November 7 for a large quantity of supplies for the Eastern navy yards, including motor, pumps, drills, &c.

The Depot Quartermaster, St. Louis, Mo., will receive bids until November 7 for a 50 horse-power boiler for Fort Brown, Texas.

The following bids were opened October 17 for supplies for the navy yards:

Bidder 15, Becker-Brainard Milling Machine Company, Hyde Park, Mass.; 27, Case Mfg. Company, Columbus, Ohio; 30, Curtis & Co. Mfg. Company, St. Louis, Mo.; 37, Cleveland Crane & Car Company, Wickliffe, Ohio; 42, Drew Machinery Agency, Manchester, N. H.; 56, Fairbanks Company, New York; 62, General Electric Company, Schenectady, N. Y.; 71, Hyde Windlass Company, Bath, Maine; 77, Hendey Machine Company, Torrington, Conn.; 78, Hallidie Machinery Company, Seattle, Wash.; 79, Henshaw, Bulkley & Co., San Francisco, Cal.; 85, Ingersoll-Sergeant Drill Company, New York; 101, Lucas Machine Tool Company, Cleveland, Ohio; 125, Niles-Bement-Pond Company, New York; 129, Pratt & Whitney, Hartford, Conn.; 133, Pawling & Harnischfeger, Milwaukee, Wis.; 143, Royce & Ricketts, Washington, D. C.; 162, George C. Thomas, New York; 174, Ernest Wiener Company, New York; 181, E. W. Bliss Company, Brooklyn, N. Y.

Schedule No. 140.

Class 11. Three air hoists—Bidder 30, $255; 78, $251; 85, $292.66.

Schedule No. 142.

Class 41. Two motors—Bidder 62, $655.

Class 42. One motor—Bidder 79, $530.

Class 47. Three windlasses—Bidder 71, $2625.

Class 48. One centering machine—Bidder 30, $124; 42, $128.75; 129, $157.50.

Class 49. One electric traveling hoist—Bidder 27, $575; 30, $1005; 37, $1150; 125, $595; 133, $895; 162, $789.50.

Schedule No. 156.

Class 167. Three milling machines—Bidder 8, $4618 and $4761; 15, $780, part; 56, $5040 and $5090; 77, $822, part; 125, $4248; 143, $4013.60 and $3913.60.

Class 168. One boring, drilling and milling machine—Bidder 101, $2440.

Schedule No. 157.

Class 183. One power trimming press—Bidder 143, $1143; 181, $1100.

Class 184. Two deck hoists and fittings—Bidder 71, $2126; 174, $2029.75.

The following bids were opened by the Isthmian Canal Commission October 16, under serial number 279:

Bidder 2, Woodward, Wight & Co., Limited, New Orleans, La.; 7, Fairbanks, Morse & Co., Chicago, Ill.; 9, Queen City Supply Company, Cincinnati, Ohio; 10, Handlan, Buck, Mfg. Company, St. Louis, Mo.; 18, Buffalo Forge Company, Bufiffalo, N. Y.; 20, Donegan & Swift, New York; 30, P. Delaney & Co., Newburgh, N. Y.; 31, R. W. Geldart, New York; 32, Manning, Maxwell & Moore, New York; 33, A. D. Granger Company, New York; 43, Henry R. Worthington, New York; 44, Motley, Green & Co., New York; 45, New Jersey Foundry & Machine Company, New York.

Class 1. Two piston steam pumps—Bidder 2, $484; 7, $294, regular equipment, and $336, brass equipment; 18, Buffalo, $444; 31, $427, Worthington, or $213.50, Smithfield pump; 32, $451.50; 33, $392, brass fitted, and $340; 43, $400.10, steel fittings, and $478.10, brass fittings; 44, $513.20, Warren.

Class 2. Four upright tubular submerged head boilers—Bidder 2, $1304; 9, $930.84, Nagle boilers; 10, $960; 20, $940; 30, $1265; 32, $916; 33, $870; 44, $900; 45, $988.

The following awards have been made for machinery for the various navy yards, bids for which were opened September 12:

Manning, Maxwell & Moore, New York, class 12, one 37-inch boring and turning mill, $1235; class 24, one back geared engine lathe, $330; class 26, one 15-inch post shaper, $365.

Niles-Bement-Pond Company, New York, class 16, two 21-inch vertical drill presses, $158.

William L. Sargent, Fitchburg, Mass., class 13, one horizontal spindle drilling and milling machine, $4490; class 31, one 18-inch double end grinding machine, $138.

R. K. LeBlond Machine Tool Company, Cincinnati, Ohio, class 19, one 16-inch plain milling machine, $441.93; class 25, one 12-inch toolroom lathe, $374.40.

I. H. Johnson, Jr., Company, Philadelphia, Pa., class 20, one triple geared engine lathe, $4053.

Rahn, Meyer, Carpenter Company, Cincinnati, Ohio, class 21, one back geared screw cutting machine, $1084.75.

C. T. Patterson Company, New Orleans, La., class 30, one 4-inch pipe threading and cutting machine, $445.02.

Under bids opened September 19 for supplies for the various navy yards the Davenport Locomotive Works, Davenport, Iowa, has been awarded class 62, one locomotive, $3140.

The following awards have been made for machinery for the navy yards, bids for which were opened October 3:

Tatum & Bowen, San Francisco, Cal., class 1, one bending roll machine, $754.50.

Henshaw, Bulkley & Co., San Francisco, Cal., Class 3, one turret lathe, $1865.

Columbus Pneumatic Tool Company, Columbus, Ohio, class 4, four piston air drills, $566.

Handlan, Buck Mfg. Company, St. Louis, Mo., class 6, one portable iron crane, $90.

Rockwell Engineering Company, New York, class 7, one Schwartz melting furnace, $1450.

Compressed Air Machinery Company, San Francisco, Cal., class 8, three back geared engine lathes, $1443.

Under bids opened October 10 for machinery for the various navy yards the following awards have been made:

Austin Mfg. Company, Chicago, Ill., class 2, one rock crushing plant, $1962.50.

Lucas Machine Tool Company, Cleveland, Ohio, class 11, one No. 1 horizontal boring and drilling machine, $1640.

Central Metal & Supply Company, Baltimore, Md., class 93, two diaphragm bilge pumps, $30.

Crocker-Wheeler Company, Ampere, N. J., Class 121, four dynamos, $380.

J. B. Roache, New York, class 196, 12 hydraulic jacks, $432.

The World's Production of Gold and Silver.

George E. Roberts, the Director of the Mint, has prepared a statement of the world's production of gold and silver for the calendar year 1904. This statement shows the commercial value of the silver totaled $97,726,300, the coinage value of which is $217,850,200. Following are the detailed figures:

Countries.	Value of gold.	Ounces of silver.	Value of silver.
United States	$80,723,200	57,786,100	$33,516,000
Mexico	12,605,300	60,808,978	35,269,200
Canada	16,400,000	3,718,668	2,156,800
Africa	85,913,900	486,408	282,100
Australasia	87,767,300	14,558,892	8,444,200
Russia	24,803,200	172,912	100,300
Austria-Hungary	2,117,300	1,987,797	1,152,900
Germany	64,700	5,799,133	3,363,500
Norway	.....	260,210	150,900
Sweden	40,200	23,702	13,800
Italy	44,000	757,777	439,500
Spain	.....	4,876,076	2,828,100
Greece	.....	895,172	519,200
Turkey	29,000	564,685	327,500
France	.....	609,638	353,600
Great Britain	102,400	174,517	101,200
Argentina	9,200	66,153	38,400
Bolivia	3,000	6,083,333	3,528,300
Chile	636,900	868,067	503,500
Colombia	1,974,400	946,066	548,700
Ecuador	132,900	.....	.....
Brazil	2,043,500	.....	.....
Venezuela	300,000	.....	.....
British Guiana	1,608,800	.....	.....
Dutch Guiana	481,200	.....	.....
French Guiana	1,788,800	.....	.....
Peru	1,329,200	3,008,705	1,745,100
Uruguay	25,000	1,093	600
Central America	1,120,700	655,357	380,100
Japan	3,984,000	3,208,620	1,861,000
China	4,500,000	.....	.....
Corea	3,000,000	.....	.....
Siam	51,800	.....	.....
India	11,495,500	.....	.....
British East Indies	1,392,800	.....	.....
Dutch East Indies	662,500	175,479	101,800
Totals	$347,150,700	168,493,538	$97,726,300

These figures show an increase of about $22,000,000 in gold over the bureau's estimate for the calendar year

1903. The United States shows a gain of about $7,000,000 and South Africa of $18,000,000. The director says that both of these countries are still upon a rising scale of production. Australia, on the other hand, is an important producer which shows a tendency to reduce its contribution, although the falling off is not large and may be temporary. Considering developments in well-known fields it seems a reasonable forecast to expect the world's output in 1905 to exceed that of 1904 by $25,000,000, with another gain probable in 1906.

In all fields an important percentage of the output has come from properties that have not yielded a profit and large expenditures have been made in prospecting which have never yielded any returns.

Pacific Coast Trade Notes.

SAN FRANCISCO, October 14, 1905.—The Korea went out Thursday with a great cargo to the Orient. This and the cargo of the Manchuria make in a couple of weeks pretty nearly $2,000,000 to add to the credit of our export trade with the Far East. It was thought that when the war was over there would be a lull in this trade. For a while our American steamers took out light cargoes, but the last two have more than made up. The trade of the port by sea has been so swelled by this Oriental business that the exports this year so far are 50 per cent. more than they were in 1904, the total to date of present writing being over $40,000,000.

Local business at present is very good. Up to March it was light, but ever since then the hardware houses of this city and coast have had all that they could do. This has been the best year in a whole decade. Everything in the wholesale hardware houses is bustle and activity. True, there is a great deal of complaint made as to prices not giving a sufficiently large margin of profit, but it is common remark that those who do business on a proper basis make as much money as they ought to, that competition must be expected and with competition comes low prices. There is great activity at present in most of our principal foundries in providing machinery for steam schooners and other vessels.

J. O. L.

The Production of Platinum in 1904.

The war between Russia and Japan is probably responsible for the fact that the output of platinum in the United States increased from 110 ounces in 1903, valued at $2080, to 200 ounces, valued at $4160, in 1904. Owing to anxiety in regard to the fate of the platinum industry in Russia the price of platinum rose about 10 per cent. during 1904. "It should not be understood," says Dr. David T. Day of the United States Geological Survey in a recent report on the production of platinum and allied metals in 1904, "that the slight rise of 10 per cent. in the price of platinum would serve as any great stimulus to the placer gold miners of the West who furnish the platinum products of the United States, for these miners are comparatively indifferent to a slight change in price. The scarcity of platinum and the consequent rise in price, however, led to much energy on the part of Eastern smelters of platinum in urging upon the placer miners of the West the advisability of saving platinum in cleaning up the hydraulic mines. The increase thus effected is interesting as showing what is possible in the United States in the future."

In his opinion the outlook for increased production for the year 1905 is good, not only on account of the continued high price of platinum, but because of the investigation undertaken by the Geological Survey of the black sands of the Pacific Slope and of the increased knowledge thus furnished to the miners in regard to the value of the platinum and to simple means of saving it.

The world's total supply of platinum for the year amounted to about 300 kg., or 9625 troy ounces, from South America, and 6000 kg., or 192,500 troy ounces, from Russia. No production of platinum from Australia was reported. A slight product of both platinum and palladium from the Sudbury copper mines continues to come on the market, but it is not profitable to extract all of the platinum and palladium which these ores could furnish. Increased interest in the occurrence of platinum in hydraulic mines and dredges of the Fraser River is due principally to the fact that the natural alloy of iron and nickel previously found in Josephine County, Ore., and in Del Norte County, Cal., has also been found in commercial quantity in the Fraser River at Lillooet. An interesting and new occurrence of platinum in place in Sumatra has been noted by Prof. L. S. Hundeshagen. All the American platinum came from California and Oregon, inasmuch as operations have been suspended in the Rambler Copper Mine, Wyoming, which furnished some platinum the year before.

The imports of platinum into the United States during 1905 showed a decline of more than 8000 ounces, due to European control of the supply, which also, of course, aided the rise in price. The present prices are the highest that platinum has commanded in recent years.

Labor Notes.

The United States Supreme Court has dismissed the appeal from the decision of the Massachusetts Supreme Court in the case of Berry *vs.* Donovan. Donovan, the business agent of the Boot and Shoe Makers' Union, induced Berry's employers to dismiss him because he was not a member of the union. Berry brought suit, and secured a verdict of $1700 against Donovan in the Massachusetts courts. The decision by the United States Supreme Court establishes the liability of union officers for injury to a nonunion employee where he is deprived of work because of nonmembership in the union.

In granting an injunction against Typographical Union No. 16 at Chicago the Court said: "The foundation of the strike in this case is the union contract demanding a closed shop and an eight-hour day. Both the closed shop and the eight-hour day are unlawful when it is attempted to coerce the employer to agree to them." The injunction restrains the union and its members from interfering with the business or employees of the complainant firms, either by attempting to dissuade the employees from working or by sending out circulars to the customers of the firms asking them to join in a boycott. In another case at Chicago growing out of the printers' strike Judge F. A. Smith of the Appellate Court sentenced three union press feeders for violating an injunction prohibiting interference with Chicago Typothetæ employees. Judge Smith said: "There is no such thing as peaceful, polite and gentlemanly picketing any more than there can be chaste and polite and gentlemanly vulgarity, peaceful mobbing or lawful lynching."

The International Association of Machinists has been making strenuous efforts to prevent the City of New York awarding to a local bidder a contract for a number of high pressure pumps. Commissioner Oakley told the business agent of the union that the company in question was the lowest bidder for the construction of the pumps and under the law must receive the contract.

The electrical contractors of Boston have formed an organization known as the Open Shop Electrical Contractors' Association, with a membership of 52 contractors, embracing a large part of the trade in the city and vicinity. In a circular letter sent to contractors it is stated that of the more than 90 contractors in the district at least 80 will become members. The association was formed because of the action of the Boston Union of the Brotherhood of Electrical Workers in presenting for renewal an agreement with their employers the terms of which are not agreeable to the contractors.

The United States Steel Corporation has decided to build at Duluth, during the coming winter, an additional ore dock which will cost about $1,000,000.

HARDWARE

HERE and there in the Hardware field a weak line is to be discovered in the midst of a market which is characterized by strength and a tendency toward higher prices, while there are not a few lines in which, with a large volume of business, prices are on a low and rather unprofitable level. This condition is sometimes the result of competition developed under the restraints which apply to it in an open market. The worst kind of demoralization, however, is experienced as the result of combinations among the manufacturers which had the effect of maintaining prices at such an altitude as to encourage the establishment of new plants and the building up of competitors who are sooner or later sure to be troublesome. The condition of the Stove Bolt market at the present time, a quite similar condition, though not so pronounced, prevailing in Tire Bolts, furnishes an impressive example of the disastrous effect of artificial control of the market and the keeping of prices on a comparatively high level, thus fostering competition and building up competing establishments. It is the old story over again—combinations leaving the last state of the goods worse than the first, high prices for a time and then a dismal plunge into unprofitable business. One cannot help conjecturing how long it will be before a similar fate overtakes other lines in which by pools, associations or other forms of agreements or combinations the market is kept from following its natural course and competition encouraged and built up.

We have an interesting letter from a well-known Hardware merchant in the Middle West, a merchant of success and position, in which he expresses indifference so far as his interests are concerned whether or not the plan of delivering mail by number and without name to the boxes on the rural routes goes into effect. This merchant is already using the rural free delivery quite extensively for delivering his wares and for distributing his printed matter. He mentions that this may be done more simply if the boxes are numbered as proposed by the Post Office Department, and in that case he would make use of the facilities thus afforded even more freely than heretofore. He indeed writes in a vein which indicates that he does not greatly fear the catalogue house or experience serious trouble from its competition, which indeed we presume stimulates him to enterprise and energy in the prosecution of his business. While we should greatly regret the coming into effect of the order which now lies dormant, because in our judgment it would be seriously detrimental to all retail interests, we must commend our correspondent's readiness to use all the facilities which are afforded even by measures which are of at least questionable wisdom. His enterprise in this matter is to be approved and imitated. In the present juncture it is the part of wisdom for other retail merchants to make use of the rural free delivery in every legitimate way. How to do this most efficiently is a matter for careful reflection and experiment.

Condition of Trade.

Reports from the Hardware field are very satisfactory, indicating a large and diversified demand. The orders which are coming in show the activity of manufacturing plants throughout the country, as there is constant call for Tools, Supplies and miscellaneous appliances used by them. Building is going on to an unprecedented extent and structures of all kinds are in process of erection. Among these are many factories and manufacturing establishments of one kind or another, while the great bulk is naturally of the residential class or for mercantile uses. Improvements in connection with railroads and other large enterprises are giving employment to labor and at the same time bringing into use tools and machinery the consumption of which tends to the immediate advantage of merchants and manufacturers. Trade in general is active as between manufacturers and jobbers and the retail merchants. Stocks need frequent replenishing to keep them full and well assorted. At the present time holiday goods are in request, as merchants are getting ready for the trade which will set in in a month or two. The increasing variety of such goods handled by Hardware merchants is noticeable in the growing attractiveness of their stores in consequence of the bringing in of holiday and other goods which have heretofore been regarded as a little aside from the Hardware field. The cold weather which has recently prevailed had a decidedly stimulating effect upon winter goods and the retail merchants have been busy in looking after their customers. In some important lines the large buyers and those generally who anticipate their wants some time in advance have been covering their requirements. The market has a decidedly firm tone in consequence of the strength of the raw material and manufacturers in a good many lines are unwilling to contract ahead at existing prices. The pressure of orders on many manufacturers is such as to prevent them from making shipments with entire promptness, while at the same time the large demand and the excellent prospect for business make them more firm than usual in maintaining quotations. In view of the advances which have taken place in a good many lines jobbers are in a position to undersell the manufacturers and comparatively few of the jobbing houses are putting into effect advances made by the manufacturers provided their stocks on hand or their contracts justify their giving their customers the benefit which results from a rising market. Some manufacturers complain of the cutting thus practiced by the jobbers as giving some irregularity to the market and causing them some annoyance.

Chicago.

Conditions in the Western Hardware trade show little change from week to week in the demand for seasonable goods and the volume of trade and its continuity are surprising to even the most sanguine jobbers and dealers. October's trade already bids fair to establish another record, the sales of one of the largest jobbing houses in this territory already being in excess of those of the same period in August and September. Individual orders for seasonable goods naturally are smaller this late in the fall than during the earlier months, but filling in orders are increasing and their volume indicates a heavy movement from dealers' stocks. Prices on Screen Doors, Wire Cloth, Poultry Netting, &c., for delivery next spring will prob-

ably be announced this week. Preparations are now being made for the holiday season, and on account of the general prosperity of the country jobbers anticipate a big demand. The range of holiday goods now carried is not only limited to such lines as would be classed as strictly Hardware, but also includes silverware, jewelry and glassware. Increased sales of Enameled Ware are reported, on account of the low prices prevailing, and Tinware to a large extent is being gradually replaced. The heavy demand noted last week for Wagon and Implement Hardware continues and jobbers are experiencing difficulty in keeping up stocks on account of the delays in securing shipments from the manufacturers. Demand for Cut Nails has improved during the past few weeks and sales of Wire Nails continue good. The demand for Barb Wire this season has been abnormal and it is believed that the heavy buying movement will to some extent cut into next spring's sales. The movement of Black and Galvanized Sheets is good and prices are steady except in the lighter gauges of Black. Collections have continued good throughout this territory despite the stringency of the Eastern money market due to the movement of crops.

NOTES ON PRICES.

Wire Nails.—Demand continues active at the mills owing to the continued call upon jobbers' stocks, notwithstanding the large contracts which were placed before the recent advances. Wants are also being anticipated to some extent, in view of the shortage of cars and scarcity of Steel. The market is firm. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads to jobbers	$1.80
Carload lots to retail merchants	1.85

New York.—The local demand on jobbers' stocks keeps up to an extent where it is difficult to keep a full assortment of sizes. Some jobbers are still selling Nails that were contracted for before the recent advances below schedule prices and to this extent the market is irregular. Regular quotations for small lots from store are, however, $2 to $2.05, base.

Chicago.—Large orders are now being received from the South, jobbing interests in such centers as Nashville, Memphis and New Orleans being the heaviest buyers. Prices are also being well maintained in this disputed territory, which is no doubt largely due to the activity of the Nail trade in other sections of the country. Official quotations are as follows: $1.95 in car lots to jobbers and $2 in car lots to retailers, with an advance of 5 cents for less than car lots from mill.

Pittsburgh.—While the larger trade pretty well covered its requirements for Wire Nails prior to the recent advance in prices, yet at the same time it is true that current demand is quite active, consumers anticipating their wants for a considerable period ahead, in view of the delays in deliveries owing to scarcity of Steel and shortage of cars. This month promises to be a record breaker in shipments of Wire Nails by the leading mills and would be much heavier were it not for the shortage of cars. The market is very firm, official prices being well maintained. We quote Wire Nails at $1.80 in carloads to the largest jobbing trade and $1.85 in carloads to retail merchants, f.o.b. Pittsburgh, plus actual freight to point of delivery, terms 60 days, less 2 per cent. off for cash in 10 days.

Cut Nails.—A meeting of the Cut Nail Association is being held in Philadelphia to-day (Wednesday), at which it is possible that some action regarding prices will be taken. Demand has been good in anticipation of an advance. Quotations are as follows: $1.65, base, for carload lots, f.o.b. Pittsburgh. Iron Cut Nails for delivery at Pittsburgh, Buffalo and all points west of these cities are held at $1.75, base, in carload lots.

New York.—The market continues as for some weeks, the demand being moderate. Some irregularity exists in prices, but regular quotations for small lots from store are on the basis of $1.90.

Chicago.—In anticipation of an early advance large orders to cover future requirements are being placed by the Western jobbing interests. On large and desirable orders the prevailing quotations continue to be shaded 2½ cents, although most of the mills have withdrawn the price of $1.75 on Steel Cut Nails during the week. We quote: Steel Cut Nails in car lots to jobbers, $1.75 to $1.80; car lots to retailers, $1.85; and less than car lots, $1.90; small lots from store, $2, base. Iron Cut Nails are firm at $1.85 to $1.90 in carload lots.

Pittsburgh.—It is not improbable that at the next meeting of the Cut Nail Association an advance in prices will be made to put the market on a par with that of Wire Nails. It is pointed out that with the scarcity and high prices of Steel and the excellent demand conditions in the Cut Nail market fully warrant a moderate advance in prices. The trade is buying liberally in view of this expected advance. We quote Cut Nails $1.65, base, in carload lots, f.o.b. Pittsburgh, an advance of 10 cents per keg being charged for Iron Cut Nails.

Barb Wire.—Both current orders and specifications on contracts are being shipped by mills as rapidly as the scarcity of cars will permit to put buyers in position to supply the demands of their trade. The market is firm. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$1.95	$2.25
Retailers, carload lots	2.00	2.30
Retailers, less than carload lots	2.10	2.40

Chicago.—There has been practically no falling off in the demand for Wire and Staples, and the continued heavy buying is surprising to the manufacturers. The great prosperity of the West alone accounts for the activity in this product at this season of the year. Prices are being well maintained. Quotations are as follows: To jobbers, Chicago, car lots, Painted, $2.10; Galvanized, $2.40; to retailers, car lots, $2.15; Galvanized, $2.45; retailers, less than car lots, Painted, $2.25; Galvanized, $2.55; Staples, Bright, in car lots to jobbers, $2.05; Galvanized, $2.35; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—Specifications on contracts placed some time ago are coming in very liberally and current business is of moderate volume. The market is firm and mills are shipping their product as fast as cars can be obtained in order to give the large trade as heavy stocks as possible, in view of the expected trouble in making deliveries when the weather breaks, owing to shortage of cars and scarcity of raw material. Official prices are being well maintained and the market is firm. We quote Painted Barb Wire at $1.95 and Galvanized at $2.25 in carload lots to the large jobbing trade, with the usual advance of $1 a ton to retailers in carload lots, f.o.b. Pittsburgh, 60 days, or 2 per cent off for cash in 10 days.

Smooth Fence Wire.—Most of the mills have all the business they can handle until the first of the year. New orders are also coming in liberally. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.65
Retailers, carloads	1.70

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago.—The mills of the leading interest are now booked until the end of the year and notwithstanding the heavy buying in the past two months current business is large. In view of the general condition of the market no difficulty is being experienced in maintaining prices. Quotations are as follows: $1.80 to jobbers, f.o.b. Chicago, in car lots, and to retailers, car lots, $1.85.

Pittsburgh.—New tonnage is quite heavy and specifications on old contracts are liberal, so that the mills are shipping out their product as fast as made and are still

somewhat behind on orders. It is expected that shipments of Fence Wire by the mills this month will be as large as in August and may possibly exceed that month. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.65
Retailers, carloads	1.70

The above prices are for base numbers, 6 to 9.

Bolts, Carriage, Machine, &c.—The opinion is expressed by a high authority that the conditions now prevailing in this market and the volume of business are the best for many years. There seems to be no incentive to price cutting on the part of the important manufacturers, as they are receiving more business than they can handle to the satisfaction of their customers. At a recent meeting of the association, which is now understood to comprise only the largest interests, the following prices to the general trade were adopted:

	Discount.
Common Carriage Bolts, rolled thread, ⅜ x 6 and smaller,	75 and 5 %
Common Carriage Bolts, cut thread, ⅜ x 6 and smaller	75 %
Common Carriage Bolts, larger and longer	65 and 5 %
Machine Bolts, ⅜ x 4 and smaller	75 %
Machine Bolts, larger and longer	65 and 10 %
Machine Bolts, C. P. C. & T. Nuts	65 %
Machine Bolts, blanks	65 and 10 %
Machine Bolts, no Nuts, 6-inch and shorter	65, 10 and 10 %
Machine Bolts, no Nuts, larger than 6-inch	65 and 5 %
Bolt ends	65 and 10 %

These prices, as has been said, are well maintained by the manufacturers, with moderate concessions to jobbers and large buyers generally. Apparently the greatest disturbance of the market comes from the jobbers themselves, who are selling in competition at somewhat lower prices goods bought before the advances now in force. There is considerable criticism of this course on the part of the manufacturers, who cite it as demonstrating the usual result of their efforts to protect the jobbing trade. It is understood, too, that many contracts have been entered at lower prices than are now ruling.

Wire Goods.—The market for Bright Wire Goods and other miscellaneous Wire articles is characterized in general by a firm tone on account of the strength of the raw material. The demand also is excellent. Under these conditions it is not unlikely that an advance on some of these goods at least may be made in the near future. Referring to this state of things the Wire Goods Company, Worcester, Mass., notifies its customers that it cannot guarantee present prices and refers to the fact that Coat and Hat Hooks have already advanced, intimating that other lines are likely to follow.

Stamped, Pieced, Japanned and Galvanized Ware, &c.—Considerable irregularity is observed in the market for Sheet Metal Ware, and it is reported that the manufacturers' association has discontinued the attempt to control the prices made by members. It is rather too early to observe the effect of this action on the lines on which competition has centered, Galvanized Ware especially, but it is probable that lower prices will rule for a time.

Bolts, Stove and Tire.—Very low prices prevail as a result of the competition among manufacturers of Stove and Tire Bolts. Discounts of 85 to 87½ per cent. and even lower have been quoted on Stove Bolts, while Tire Bolts are offered at better than 80 per cent. discount. An important meeting of the manufacturers' association is to be held this week, and in view of the unsatisfactory condition of the market it is thought that unless prices can be agreed upon at this time the association may be discontinued. The result of the conference will be awaited with interest.

Coach Screws, Lag Screws, &c.—The market for Coach and Lag Screws is firmer and the following advanced prices have been adopted by the manufacturers:

	Discount.
Coach Screws, gimlet point	75 and 10 %
Lag Screws, cone point	75 and 15 %
Skein Screws	75 and 10 %
Set Screws, } Forged	50 and 10 %
Tap Bolts, }	

Nuts.—The market for Nuts is characterized by increasing firmness with an excellent demand in all quarters, but especially for manufacturing purposes. Prices hold pretty close to the figures adopted by the manufacturers, although the usual concessions are made to larger buyers, and some underselling is reported on the part of well stocked jobbers. The published prices are as follows:

	Off list.
Hot Pressed Square Nuts, blank	5.30c.
Hot Pressed Square Nuts, tapped	5.20c.
Hot Pressed Hexagon Nuts, blank	5.20c.
Hot Pressed Hexagon Nuts, tapped	5.70c.
Cold Punched Plain Square Nuts, blank or tapped	5.00c.
Cold Punched Plain Hexagon Nuts, blank or tapped	5.45c.
Cold Punched C & T. Square Nuts, blank or tapped	5.30c.
Cold Punched C. & T. Hexagon Nuts, blank or tapped	6.05c.

Horseshoes.—The price of Horseshoes is firmly maintained at association rates established nearly two years ago—viz.: $3.75 per keg of 100 pounds for Steel and $4 per keg on Iron Horseshoes, f.o.b. Pittsburgh, subject to the same rebates as before to jobbers. The various factories in operation manufacturing this line are full of orders and in many instances far behind in deliveries, one concern being 10,000 kegs in arrears. As a rule only the best grades will be accepted by practical horseshoers in this country, although in portions of the Southeast of the Mississippi River and south of the Ohio there is a market among some of the buyers for somewhat cheaper grades.

Cast Iron Goods.—The market for Cast Iron Goods, such as Cast Iron Butts, Door and Shutter Bolts and other goods of this class, both japanned and plain, has not been materially affected by the higher price of raw material. The manufacturers, as a rule, have a supply of raw material on hand from which to draw, but when they are obliged to go into the market to purchase further material an advance in the finished product may become necessary. Manufacturers acknowledge that prices for these goods are low, as many japanned Cast Iron goods are selling at the rate of 3 cents per pound, the makers in addition paying freight allowances and allowing a cash discount. The demand for this class of Hardware is fair, but not as large as during the corresponding period last year.

Asbestos.—Some changes in the way of advance in Asbestos products was made October 16 by the interests which perfected a working arrangement for the regulation of prices last spring. Current rates are as follows: Millboard, 10 cents per pound, in lots of 5000 pounds or more, is subject to a discount of 50 per cent.; on less than 5000 pounds 33 1-3 per cent. discount only is given. On Rollboard ⅛ and 3-32 inch thick, 8 cents per pound, in carload lots of 30,000 pounds or more there is a discount of 50 per cent.; less than carloads, or quantities between 30,000 and 5000 pounds, 40 per cent. discount is quoted, and any quantity under 5000 pounds takes a discount of 33 1-3 per cent. Asbestos paper, 1-16 inch and less in thickness (covering thicknesses of 6 pounds to 100 square feet to and including 30 pounds per 100 square feet), 6 cents per pound, from which 40 per cent. discount is obtainable for carloads and 33 1-3 per cent. discount for less than carloads. Rope or Wick Packing in lots of 500 pounds is 15 cents per pound; less quantities are 20 cents per pound.

Rope.—The price of Rope has been advanced in view of the higher price of Manila Hemp. Manufacturers announce card prices as follows: Pure Manila, 12½ cents; B quality, 11½ cents; Pure Sisal, 9½ cents; No. 2 quality Sisal, 8 cents per pound. One manufacturer is naming prices ½ cent in advance of the above. Demand is large and is in part attributed to the closing out of Rope stocks which were held by mills which went out of operation about the first of the year. The trade formerly going to these mills is now distributed among other manufacturers.

Glass.—The flat scale will come into almost universal use as the majority of manufacturers have realized the uselessness of longer holding out for the sliding scale of wages. The gradual going over to the flat scale of manufacturers who had agreed to stand by the sliding scale and close factories if necessary became accentuated as time went on and every effort failed to bring the flat scale workman over to the sliding scale plan. Many factories not already operating under the sliding scale will now

be started up on the flat scale basis. It is too early to determine what effect this will have on prices. New York quotations are as follows: First two brackets, single and double strength B, 90 and 10 per cent. discount; all other sizes, single and double strength, 90 per cent. discount. The *National Glass Budget* makes the following statement regarding recent advances in the price of Plate Glass:

At a meeting in Pittsburgh, held October 17 and 18, independent Plate Glass manufacturers again advanced prices about 10 per cent. and appointed a committee of five to draw up plans for a permanent organization, through which it is hoped a general betterment of conditions can be brought about and maintained than has existed during the past 18 months. The advance made this week, which became effective October 17, only touches Glass in the third bracket and upward, the largest sizes being most affected. On September 27 an advance of 5 per cent. was made on first three bracket Glass, the larger size not participating in the rise. This makes the third advance in Plate Glass within the past 60 days, amounting in all to over 30 per cent. All independent Plate Glass factories were represented at the meeting, and it is understood that the Pittsburgh Plate Glass Company will co-operate with the independents on the new prices established. The rapid advance in this commodity is justified by the unusual activity in the building trades and consequent large demand for Glass, which heretofore had been selling at ridiculously low prices.

Linseed Oil.—Demand continues active for spot Oil, at unchanged prices. Oil in this territory is not received promptly owing to car shortage and other delays. Some deliveries have been received on October contracts for out of town Oil, which has been offered at slight concessions from regular card prices. Futures on out of town Oil are offered at 36 cents for Raw. New York quotations for prompt delivery are as follows: City Raw, 45 to 46 cents per gallon; State and Western Raw, 43 cents per gallon, according to quantity.

Spirits Turpentine.—Prices have fallen off about 1 cent per gallon during the week under review. Buying has been of a hand to mouth character owing to high prices. New York quotations are as follows, according to quantity: Oil barrels, 69½ to 70 cents; machine made barrels, 70 to 70½ cents.

ORDERING STOVE REPAIRS.

BY H. L.

STOVE REPAIRS are often ordered in a haphazard fashion, and as a rule this important work is a very much abused part of the business. As a possible aid I offer two blank forms as being convenient to use and likely to save time and trouble.

These blanks should be printed on mailing cards, or, rather, have the form presented in Fig. 1, headed "Blank & Co.," printed on one side and the address and heading for the mailing card printed on the other side, taking care to make the address small and to keep it well toward the end of the card, as shown in Fig. 2. Then a rubber stamp should be made for the form stamped on the address side of the card, as shown in Fig. 2, so when the owner fills out the order for the Repairs and sends it in the stamp can be used on the other side of the card and the blanks filled in from time to time, as shown.

In actual practice the cards can be given or mailed to those in need of Repairs or given to the workman who may go to see what Repairs are needed. If given or sent to the owner the card should be stamped, because it is very seldom the householder has a 1-cent stamp at hand, and stamping the cards will save a number of orders that would otherwise be lost. In dull times it sometimes pays to have a small card printed explaining that expensive Repairs are often needed because inexpensive ones were not attended to at the proper time and suggesting that the party to whom the card is sent look over the Stove and fill out the inclosed blank. One of the blanks noted above should be inclosed, and it might be just as well not to stamp these, though several orders should be secured from each 100 cards sent out.

On the card sent with the above blank it would be well to especially request that if no Repairs are needed the householder say so on the card and sign and return it. It would also be well to state that if the owner does not want to examine the Stove that a man will be sent to do it without charge if the request is made on the blank form. If care is used to send the cards according to locality it will be found that one man can cover a great deal of ground and examine a number of Stoves in a day.

As soon as the card comes back if it contains an order it should be indexed, indorsed and filed. The indexing should run serially from No. 1 and is kept only for convenience in referring to the order number later. This index should be kept on cards of the same size but of different tint, and the first thing done to the order, after stamping it with the form on the rubber stamp, is to give it the next blank number, as shown by the index card, and this is then marked on the blank in the proper place. Then the name of the owner is marked at the top, the surname being put down first and then the initials, as shown on accompanying form. The address follows and then the date order was received. The next thing to do is to make out an order on a blank form, a postal card or a regular letterhead to the manufacturer or dealer, and he should be requested to mark plainly each and every piece he sends with the number of that order. This will save lots of trouble later by preventing a mix-up in the repairs for several different parties, especially if the dealer sends several orders in one lot.

.....190..

BLANK & CO.:

Please send me the following repairs for my stove as soon as possible and send and put them in for me:

Name of stove.....

Number..... Date.....

Made by.....

Where made.....

Repairs wanted.....

.....

.....

.....

.....

Remarks .....

.....

Signed:

.....

Owner.

Address .....

Fig. 1.—Blank for Order on Back of Mail Card.

The order being written, entry is made on the blank form of the name of the firm from which the Repairs were ordered, the name or initials of the clerk who ordered them, the date ordered and also how they were ordered shipped. The blank form is then placed in the temporary file until the castings arrive, when they are checked off, the date received is marked in the proper place and any shortage noted. Then the customer is notified by postal card or telephone that the Repairs have arrived and requested to set the time that they shall be put in. This is noted on the card and any further steps should be noted on the card as they are taken. When the Repairs are in the date is marked on the card as well as the name of the workmen, and the record is complete and the form ready to transfer to the permanent file as soon as the Repairs are charged. This should be indicated by a check mark at the bottom of the card.

Some dealers may want to have the workmen's time also charged on this card and if desired provision could so be made. Usually workmen put in daily time cards, or

separate cards daily for each job they work on, and the time can be better charged up from these cards than from the form. One advantage of putting it on the form is that it puts all the information regarding the transaction, except the cost of the Repairs and transportation of them, in one place, though it probably adds nothing to the value or interest of the record to do this. However, if the time and the labor cost is put down the cost of the Repairs

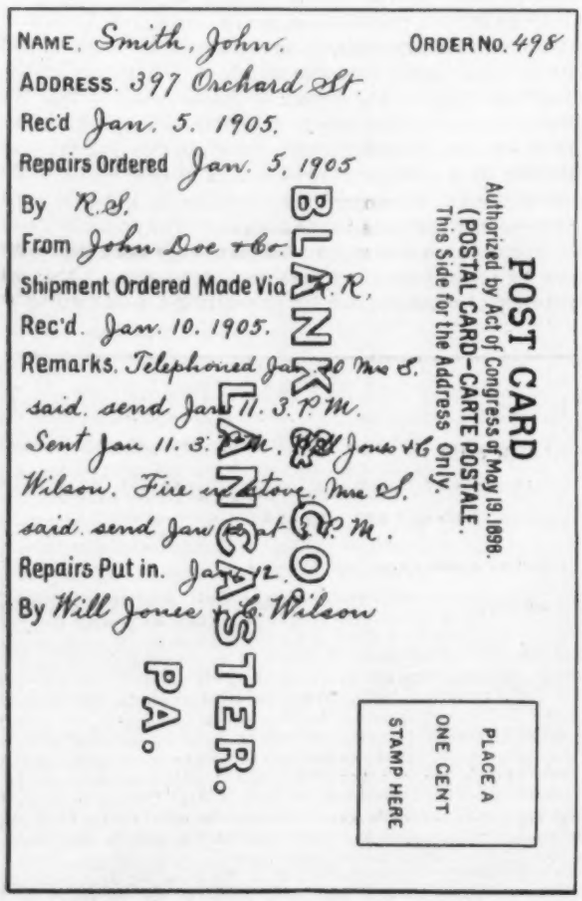
NAME. Smith, John. ORDER No. 498
ADDRESS. 397 Orchard St.
Rec'd Jan. 5. 1905.
Repairs Ordered Jan. 5, 1905
By R.S.
From John Doe & Co.
Shipment Ordered Made Via R. R.
Rec'd. Jan. 10. 1905.
Remarks. Telephoned Jan 10 Mrs S.
said. send Jan 11. 3. P. M.
Sent Jan 11. 3. P.M. Will Jones +6
Wilson. Fire in stove. Mrs S.
said. send Jan 12 at 9 A. M.
Repairs Put in. Jan 12.
By Will Jones & E. Wilson
POST CARD
Authorized by Act of Congress of May 19, 1898.
(POSTAL CARD—CARTE POSTALE.
This Side for the Address Only.
PLACE A ONE CENT STAMP HERE
BLANK
LANCASTER.
PA.

Fig. 2.—Face of Mail Card with Memoranda Made with Rubber Stamp.

and the freight or express charges on them should also be recorded.

The card system should be used for filing these forms and they should be placed in the file alphabetically. The few front rows of the files should be used as temporary files to keep the cards in after they are received and until the Repairs have been received and put in and the record completed. They should then be removed to the permanent files. A small box or drawer will hold a surprisingly large number of cards, and each letter, or each group of letters, should have a larger card in front of it to facilitate the filing or finding of the cards.

It will often be found convenient to refer to these files, sometimes several years after Repairs have been put in, to get information, so it is a good plan to store each filing case as it is filled and provide new ones for current use. If this is done care should be taken to get in each file a complete continuity of serial numbers and to have in each case the index cards for these numbers. It will be found in actual practice that this system requires a great deal less trouble to operate than this description and explanation would seem to indicate, and the saving in time and vexation that it effects is incalculable. A fair trial of it will convince any one that it is a labor saver and provides a method hard to improve on for a systematic handling of the records of a very difficult branch of the business.—*The Metal Worker.*

The Hardware firm of Inscho & Inscho, Tioga, Pa., has been dissolved, J. L. Inscho remaining and forming with R. J. Camp a new firm, which will continue the business under the style of Inscho & Camp.

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POSSIBLE RECOMMENDATIONS FROM THE P. O. DEPARTMENT.

FROM OUR SPECIAL CORRESPONDENT.

WASHINGTON, D. C., October 24, 1905.

THE postponement of final official action on the question of the propriety of permitting the delivery of mail to the patrons of rural routes by box number only and authorizing the postmasters to furnish to applicants the number of routes and boxes thereon radiating from their respective offices has aroused the suspicion here that the matter will be in some way referred to Congress, possibly in connection with the forthcoming reports of the Postmaster-General and his assistants. These reports are now well under way and will all be made public within the next thirty days. Whether they contain any reference to this particular matter or not there is ground for belief that at least two important recommendations will be made of vital interest to retail merchants in all lines. The publication of these suggestions will doubtless serve as a signal to arouse the trade to make once more the energetic campaign which last year resulted in the defeat of both propositions.

The Most Important of These Recommendations

will be that of Third Assistant Postmaster-General Madden, who for several years past has urgently endeavored to induce Congress to authorize the consolidation of third and fourth class mail matter, including miscellaneous printed matter and merchandise, under the rate now levied on third-class matter of 8 cents per pound, or one-half the merchandise rate. This proposition of course means simply the cutting in two of the postage bills of the big mail order houses and the loss to the Government of not less than $2,000,000 per annum, which would have to be met by the general taxpayers for the benefit of a few big concerns.

General Madden's argument in favor of this project is a very simple one. He says that "the difficulty of differentiating between third and fourth class matter is annoying to the postal officials and irritating to the public," and that "this irritation is accentuated by the well-known fact that under the parcels post arrangement matter of the fourth class (merchandise) is sent to certain foreign countries in packages larger than are admissible to the domestic mails and at less than the domestic rate of postage, 1 cent an ounce or fraction thereof." He adds that "the knowledge that this rate is conceded by the Department to be in excess of the actual cost of transportation and handling, that the third-class rate of postage fully covers such cost and that the volume of fourth-class matter constitutes but a small portion of matter transmitted in the domestic mails justifies a demand for relief."

Mr. Madden's proposition therefore is that because a good deal of agitation for a domestic parcels post is based on the fact that the international rates are lower than domestic rates something should be done to provide a sort of parcels post in the domestic mails. There can be no doubt that an 8-cent rate on merchandise would go a long ways toward meeting the views of the parcels post boomers, and it is highly significant that when this proposition was brought forward last year its chief advocate was Secretary Cowles of the Postal Progress League, who came to Washington on several occasions and filed arguments in behalf of the project. The House Committee rejected the measure, but the Senate Committee adopted it. When the bill was reported to the Senate, however, Senator Dolliver of Iowa raised the point of order against it that it was new legislation, in which he was sustained by the Chair, and the scheme went out.

As to the Loss to the Postal Revenues

that would result if this scheme should be carried through we have only Mr. Madden's figures. He calculates that at the outset there would be a decrease of $1,901,780.92, but he says that "the experience of the Department shows that where there has been a reduction in the postage rate there has been a corresponding increase in the amount of matter mailed," and he therefore argues that "it may reasonably be assumed that if these two classes of mail matter were consolidated no material loss of revenue would result, while the cause of existing friction and annoyance would be removed and the business interests of the country would be served." It would seem to be a very inopportune time to suggest any scheme involving a probable loss of revenue when the annual postal deficit for the current fiscal year promises to exceed $15,000,000. The "irritation" and "friction" of which General Madden speaks are purely imaginary. A great deal has been made of the fact that a few articles, like printed calendars, appear to be subject to classification either as printed matter or merchandise, but the category of such doubtful articles is very small, and as to the great bulk of matter subject to postage at either third or fourth class rates no schoolboy would find difficulty in making the proper classification.

It is highly significant that last year General Madden's project made greater progress than at any time since he first brought the suggestion forward in his annual report. Retail merchants will consult their own interests in keeping a sharp eye on developments here and taking the matter up promptly with their Senators and Congressmen as soon as it is known that this scheme is again to be urged upon the attention of the lawmakers.

Another Recommendation.

It is understood that Fourth Assistant Postmaster-General De Graw will renew the recommendation made a year ago by General Bristow for the establishment of a rate of 3 cents per pound on local packages originating at the distributing offices of rural routes. This recommendation was designed to produce additional revenue from the rural service and was set forth in General Bristow's report as follows:

> With the establishment of rural mail delivery and the increasing extension of rural telephone service by private interests there has grown up a demand by the patrons of the rural service for the delivery of small packages of merchandise, such as food stuffs, tobacco, dry goods, drugs, &c., on an order to the local merchant by postal card, telephone or otherwise. The value of these packages of merchandise is usually small, and the present rate of postage of 1 cent per ounce is practically prohibitive. The patron or merchant cannot afford to pay 16 cents for the delivery of a pound of coffee or tobacco or similar article, but if a special rate were established on such matter from the distributing office for delivery to any patron on the rural routes from that office it would be a great convenience to the patrons and become a source of revenue to the Department.
>
> It is therefore recommended that the Congress fix a rate of 3 cents per pound, or any fractional part thereof, on packages of books or merchandise not exceeding five pounds mailed at the distributing post office of any rural free delivery route for delivery to a patron on said route. This rate should apply only to packages deposited at the local post office for delivery to patrons on routes emanating from that office and not to mail transmitted from one office to another. The rate of 3 cents per pound would be ample remuneration for the Department, because there is no expense for railway transportation, and the system by which these packages are to be delivered is already established and such delivery would entail no additional expense upon the Department. A special stamp could be provided for this class of mail matter.

It will be noted that this project is apparently in the interest of local retail merchants and General Bristow was at much pains to point out to the Congressional committees that the big catalogue houses could not utilize it because packages to be entitled to the reduced rate must originate at the distributing offices of the rural routes. Much opposition was aroused to the plan, however, on the ground that it would operate merely as an entering wedge for a domestic parcels post. General Bristow's project was rejected by the House committee a year ago, but was placed on the appropriation bill by the Senate committee and adopted by the Senate. When the bill reached the Conference Committee, however, the House conferees refused to consider the Bristow proposition and the Senate yielded the point. If the scheme is again brought forward the history of last year's legislation will help it somewhat and its opponents will do well to keep the members of both the Senate and House Post Office committees fully informed as to its objectionable features in order that it may not be surreptitiously slipped in during any of the numerous stages of the consideration of the appropriation bill.

W. L. C.

The Hardware store and stock of E. H. Woelk, Garfield, Kan., have been destroyed by fire. He will not rebuild at present.

Manufacturers and Jobbers at Washington.

THE arrangements for the annual meeting of the American Hardware Manufacturers' Association at Washington, D. C., November 8, 9 and 10, are about completed, and indications point to an exceptionally large attendance of the producers of goods and their representatives. The work of the convention will be principally of an executive character, as already announced. The social features of the gathering are in charge of a Reception and Entertainment Committee, under the efficient leadership of F. S. Kretsinger, president of the American Fork & Hoe Company, Cleveland.

Thursday Night's Reception.

The special feature of the entertainment programme will be the reception at the New Willard Hotel on Thursday night, November 9. There will be an open session early in the evening, in which the ladies are invited to participate and at which speakers of national prominence will make addresses. This will be followed by the reception, which promises to be a brilliant affair and the social event of the Washington gathering.

On Thursday afternoon, after the reception at the White House by President Roosevelt, which will be at 2.30 o'clock instead of 12.30 o'clock, as announced in our last issue, there will be an automobile observation trip through Washington. This will give the host of manufacturers, jobbers and other visitors, including the ladies, an excellent opportunity to enjoy the sights of the nation's capital.

The Banquet.

The banquet of the National Hardware Association will be held in the New Willard Hotel on the evening of November 10, this function ringing down the curtain on the annual gathering of the members of the National Hardware Association and American Hardware Manufacturers' Association in simultaneous conventions. The subscription price of the dinner will be $6 per cover. It is requested that those who desire to participate in the banquet shall notify E. S. Jackson, Miller Lock Company, Frankford, Philadelphia, Pa., at once, inclosing check for number of covers required. "First come first served" will be the rule in assigning the seats.

Both conventions promise to be unusually interesting and successful, and all the indications point to an especially large and representative attendance of the trade from every section of the country.

UNION TWIST DRILL COMPANY.

THE officers of the Union Twist Drill Company, Athol, Mass., were the guests of the Athol Merchants' Association at a banquet at the Pequoig House on the 10th inst. The object of the banquet was to provide an opportunity for the local business men to meet and become acquainted with the members of the new company. About fifty persons were present at the affair, which proved to be a most enjoyable occasion. The company was represented by John A. McGregor, president; E. T. Ward, treasurer; J. H. Drury, assistant treasurer; W. B. McSkimmon, secretary; John W. Boynton and Simon MacKay, superintendents, and W. A. Darling, who is in charge of the New York City office of the company. A number of addresses were made, including one by President McGregor, in which he referred to the material growth of the company's business and its large plans for the future.

THE BALDWIN FORGING & TOOL COMPANY has just finished equipping a large plant at Columbus, Ohio, for the manufacture of Shovels, Spades, Scoops, Drain Tools, Post Hole Diggers and Handles. Operations were begun about a month ago, but the company does not expect to have its full line on the market before November 1. Frank M. Baldwin, formerly of the Chicago Steel Mfg. Company, is president and treasurer of the new concern.

TRADE WINNING METHODS

This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

A Plan for Local Hustling.

BY H. A. JOHNSON.

SOME weeks since in a series of articles in *The Iron Age* I touched upon the value of circular letters in furthering the business interests of retail Hardwaremen, as follows:

THE CARPENTER'S TRADE, *The Iron Age*, August 17.
THE MASON'S TRADE, *The Iron Age*, August 31.
THE BLACKSMITH'S TRADE, *The Iron Age*, Sept. 7.
THE MACHINIST'S TRADE, *The Iron Age*, Sept. 14.

In each of these articles was given a draft of a letter which might be used by any Hardwareman who cared to do so. But these articles covered only the trades that in any community number many names.

In this article I shall deal with a method of getting a retail Hardware store "right under the nose," so to speak, of those trades or businesses where fewer men are to be interested.

COOPERS.

The first thing is to pick out a good live salesman, one well acquainted with stocks and prices. Explain to him that he is to call on every man in town in the cooper's trade; that he is to go right to the man at his work. Equip this salesman with a grip containing staple Tools of the cooper's trade. There may not be many Tools, mind you, nor many men, but have them all interviewed. That will route up one day's work.

TAILORS.

The next day change the "exhibit" of Tools in the salesman's grip, and send him around among the tailors. There will be few Tools to carry, only a pair or two of Tailor's Shears, Tape Measures, and a catalogue in which the subject of the Tailor's Goose is covered, as well as up to date Stands for holding the Irons while they heat; also approved method of heating Tailor's Irons.

GROCERS.

Another day let the salesman call on the grocerymen. What for? Well, the subject of Scales might strike some one favorably. A Hatchet may be needed here, a Box Opener there and a Nail Puller somewhere else; Fruit and Banana Knives, too. In fact, come to think of it, a grocer uses several things that a Hardwareman handles in stock.

HOTEL CHEFS.

On the next day the hotel chefs need seeing. They use Hatchets, Knives of all sorts, Chopping and Paring Machines. Many hotels have handy men, who do the necessary tinkering and repairing. This man may want a Lock or Screws, Nails, Sash Cord or Chain, Tools or something else.

THE PICTURE FRAME PEOPLE,

even though there be but one in a town, ought to be drummed hard. A picture framer uses Glue, Tools, Wire Brads, Picture Wire, Screw Eyes, Molding Hooks, &c. Particularly at this season must the picture framer lay in a stock of materials. The Hardware salesman's call, then, may be very opportune.

LAWYERS.

An unworked field, too, are the lawyers. They use Cash and Strong Boxes, Knives, &c. Shaving Tools, Scissors and Thumb Tacks might be named as among the possibilities.

THE COAL AND LUMBER MEN

should be the subject of a day's call. Here is a chance to dispose of Coal Screens, Coal Shovels, Lumber Rules, Rope, Chain, Locks. Maybe the coal yard has a kindling wood business. This means Circular Saws and the sundries that machinery makes necessary.

THE DRY GOODS PEOPLE

use more of Hardware items than one might imagine. They use Tools in and around the store, Box Openers, Nail Pullers, &c.

LIVERYMEN.

The salesman might profitably call on the liveryman, too. Here are used Rivets, Leather Punches, Wrenches, Hay Forks, Stable Brooms, Mangers, Pails, Halters or Rope and sundries.

BUTCHERS.

A most important route is one among the butchers. Here indeed is a field of fine possibilities. Saws, Knives, Steels, &c., are always in demand.

Credit for the Firm.

Above are named 12 possible routes for the salesman. Every day then for two weeks he will have called on the people of the town. His grip will have changed daily to accord with the trade of those called on. Many of the trips will cover only a morning. This lets the salesman have the afternoon for another trip, or lets him spend the time in the store filling orders, perhaps taken that morning. His sales may not be large, but what about the advertising, the hustling that his firm will get credit for? Another thing, *any man will buy more when it is brought to him than if he went out to buy.* Was there ever a man who sought to buy life insurance? Well, hardly. The policy holder is sought out. Suppose manufacturers and mill people waited for orders to come in. How long could they do business that way? So, instead of waiting, they send men hither, thither and yon. The man calls on the ones who can use his goods and the result is business and profit for the hustling employer.

Going Right to the Customer.

I was once a traveling salesman and I have many times gone through a retailer's stock with the buyer. As we came to goods that I sold, I would ask how about the stock of that. Upon looking he might find some was needed, so down went the item. By the time the stock had been gone over, even hastily, my order book would show results. Now, suppose I had sat in the retailer's office and asked about his stock of this and that. He wouldn't have known, and the chances are many items would have been glossed over. But face to face with each subject the result is different. I cite this illustration only to back my argument that the retailer's salesman will sell more goods by *going right to the customer* than were the customer to be waited for to come and buy a certain thing. The term "waiting on customers" is only too true nowadays. The store that makes the most money is the one where the customers have to do the "waiting on," because a popular store and a lot of customers makes that necessary.

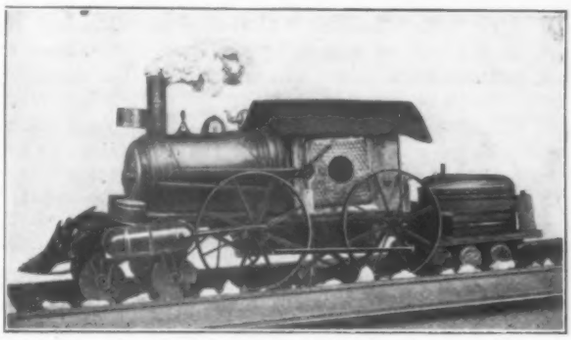
Must Be Done Regularly.

I say without fear or favor that for a retailer to send a salesman out locally, as I have outlined above, is the finest sort of business. He will remind folks of a need and save a customer a trip to the store (and it might be a competitor's store at that). Goods sold can be delivered the same day, or the following one anyway. They can be sent C. O. D. or charged. A most important part of it is the fact that if the plan be used it must be done regularly. The calls must be made at stated intervals and I should say two weeks apart. Many a man *saves* an order for a traveling man who calls regularly. And the same idea that has made the traveling man a permanent detail of business success in a national sense would make it true in a local way.

You, Mr. Reader, may use this idea or you may sniff and pass it by. I am naming it only because I know where it is being used and used to extremely good advantage, as two competitors of a firm I have in mind know only too well and to their sorrow for not having cornered the idea themselves.

A LOCOMOTIVE FROM KENTUCKY.

THE locomotive and tender reproduced herewith attracted much attention while the exhibit occupied a place in one of the show windows of the Shacklett-Thomas Hardware Company, Fulton, Ky. Barn Door Track furnished the rails, Carpenters' Chalk and Pumice Stone supplying the gravel. The body of the tender was a large Roaster, the base being a Folding Grate Screen, and the wheels boxes of Axle Grease. The fuel was charcoal. Two Door Mats constituted the base of the engine, the boiler being a Water Cooler. The drivers were Wheelbarrow Wheels and the driving rods Folding Carpenters' Rules. Bolts supplied the axles and Hay Fork Pulleys and Wrenches the gearing. The sand box was an Oil Can, while Dynamite Fuse personated the sand pipe. The cylinders were Oil Cans, long Oil Can spouts answering for brass trimmings. Carpenters' Rules made up the pilot and a Hand Bell rested on the top of the boiler. The cab was an Oil Stove Oven, Foot Mats supplying the roof.



A Locomotive Window Exhibit.

HARDWARE ON A JAUNT.

MIDDLETOWN, PA., had a three-day celebration in honor of its one hundred and fiftieth anniversary on the 2d, 3d and 4th of July last. On the 3d the business men of the town held an industrial parade. R. P. Raymond, wholesale and retail Hardware and Stove merchant, was conspicuously represented by two floats, one of which is reproduced herewith. This float exhibited Oil Stoves, Ice Cream Freezers, Lawn Mowers, Bells, Saws, &c., in an attractive manner, souvenirs of the occasion being distributed from it in the way of fans, whistles, buttons, &c. The other float consisted of a two-story and garret house in miniature, nicely painted and decorated. This exhibit was designed to invite attention to Mr. Raymond's line of Paints and Varnishes and did it most effectively, proving a very good advertisement for this department of his business. Neither of the floats was of large dimensions, as the streets of the town are not paved and are very rough.

An Anniversary Parade Float.

Penniman Bros. & Co., Asheville, N. C., whose wholesale and Vehicle business conducted by the R. Cruzen Company, Paxton, Ill., has been taken over by C. A. Nordgren, who for several years has been the owner of practically all the capital stock of the company.

Correspondence.

THE HORSESHOE EPISODE.

To the Editor: In your issue of October 19 appeared an article headed "A Horseshoe Episode," regarding the sale of a large quantity of Horseshoes to a certain catalogue house. In referring to the manufacturing company making the sale the article set forth that "its chief executive officers were taken from prominent jobbing concerns, the secretary occupying an official position in an influential jobbing association."

I find that some of your readers are under the impression that you referred to the National Hardware Association and to the writer as the secretary involved. Knowing that you have a friendly feeling for the National Hardware Association, I ask an opportunity of placing before your readers the facts in the case.

More than a year ago an effort was made to enlist the co-operation of the writer in the Horseshoe company to which the article refers. He was sent for to come to New York City and meet some of the organizers of the company. An effort was made to induce him to sell some of the capital stock of the company to the members of the National Hardware Association.

The overtures were not considered—first, because as a matter of principle the writer has never offered to his friends or acquaintances stock in any proposition, and, second, it was the writer's impression that the established Horseshoe manufacturing plants were amply able to supply the demands of the country. This action was reported to the Executive Committee of the National Hardware Association and unanimously approved.

Late in June of this year one of the circulars which you reproduced on page 1055 of your last issue reached the writer, and a copy of it was at once sent to all the members of the National Hardware Association and an inquiry started to ascertain what Shoes were being offered and the source of the supply. From July 6 to 11 the writer was in the territory most seriously affected by the circular in question. We did not learn until July 10 that the order had been taken by the company referred to. Immediately upon obtaining the information we wired the company in the name of the National Hardware Association asking that the order be "canceled at any cost." Not receiving a satisfactory reply to our telegrams, the writer visited the city where the goods were made and used all possible arguments to have the Horseshoe company induce the catalogue house to release it from the contract. In short, this association did all in its power to prevent the consummation of the transaction and we feel that it is rather unjust to the National Hardware Association and its membership that they should be censured for a transaction in which they had no part and which they spent time and money to prevent being consummated.

It may be that one or two members of our association have stock in the Horseshoe company. Indeed one member told me that he had bought stock, but he knew nothing of the sale until after it was consummated and that he had entered a very vigorous protest.

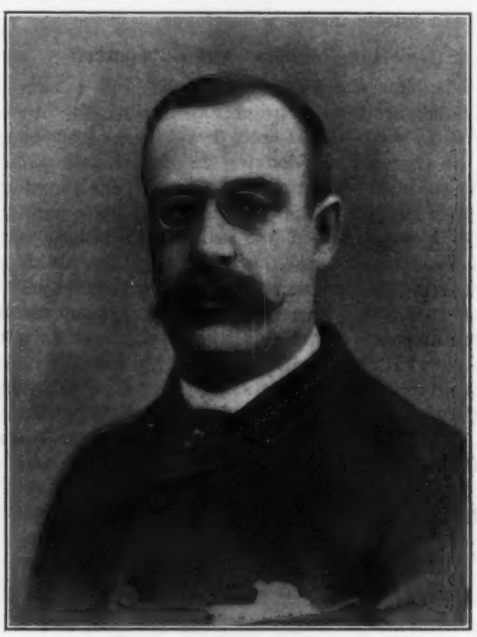
We are of course very much surprised that a company the stockholders of which are engaged in the heavy Hardware business and whose customers are principally blacksmiths and consumers should place such a weapon in the hands of a catalogue house. As a matter of fact, with a few exceptions these parties are not jobbers, as their principal business is the selling of supplies to wagon builders, blacksmiths and other consumers. With the exception of two or three parties the principal business conducted is not with the merchant trade. We have been informed that the Shoes alluded to were a lot which had been returned to the factory by the regular trade and that it was a question of consigning them to a scrap pile or disposing of them in some unusual manner.

In short, this association did all in its power to prevent the consummation of this sale. The members of the National Hardware Association are not selling catalogue houses, and we feel that our attitude on this question should be explained to your readers, some of whom have evidently misunderstood the references made in the article.

T. JAMES FERNLEY, Secretary-treasurer,
National Hardware Association.

DEATH OF CHARLES C. ADAMS.

CHARLES C. ADAMS, Boston manager for Sargent & Co., New Haven, Conn., died suddenly at his residence, Dorchester, Mass., Friday, October 20, aged 59 years. He had been in poor health for some time as a sufferer from asthma and bronchitis, and his death was an indirect result from these ailments. Charles Clark Adams was one of the best known Hardwaremen in New England and the Eastern provinces and few men in the trade had so wide an acquaintance throughout the country. The social side of his nature was strongly developed. His personality was unusual and won for him a great popularity. He was, consequently much sought after for social occasions, and those who have attended the annual dinners of the New England Iron and Hardware Association will long remember him as the toastmaster on various occasions, for in this capacity few excelled him. He was a native of New Orleans and in his early manhood learned the printer's trade. He served as a bugler in the Union army during the Civil War and saw much active service. Soon after peace was declared he entered the Hardware business, and for a time was in the Hardware commission business for himself in Boston. In 1876 he went with Sargent & Co., and ten years ago when the Boston office was established was made its manager, which position he filled until his death. He was a member of the G. A. R., was a past commander of a Boston post, and for a long time was a member of the National Pension Committee of the Grand Army. He was a member of the Ancient and Honorable Artillery Company, of the Boston Athletic Association and the Boston Whist Club, and was a Mason, a Knight Templar and an Odd Fellow. He leaves a widow, two sons and a daughter. The funeral was held at the Harvard Congregational Church, Dorchester, Tuesday. The New England Iron and Hardware Association passed resolutions on the death at a special meeting held Monday.



CHARLES C. ADAMS.

A. D. Kerr & Son have succeeded Albert Spannogel in the Hardware and Saddlery business at Nokomis, Ill.

THE REFRIGERATOR MARKET,

CONDITIONS of unusual interest prevail in the Refrigerator market and the outlook is marked by more than average promise. The past season has been the busiest which manufacturers have experienced for a long period. The cool summers of the past few years have caused a curtailment of production as well as some carrying over of stocks on the part of jobbers and large retailers. This year the coolness of the spring and early summer seemed to presage a similar season; buying was on a moderate scale and no increased consumption was provided for by manufacturers. Warm weather succeeded and has ruled with slight interruptions ever since. Large sales followed; stocks soon became depleted and manufacturers were put to it to fill reorders which were uniformly "rush." This fall finds the market pretty well cleaned out, so that buying for next season is expected to be early and in very good volume.

Increased Consumption of Better Grades

and larger sizes of Refrigerators is a noteworthy feature of the market. More goods are being built to order to fill certain space or meet certain conditions, as in private residences, apartment houses, which are going up rapidly in all the larger cities, markets, &c. In this regard a manufacturer whose plant is located in the Central West writes:

The demand at present exceeds that of any former year, and there is a general tendency to spend more money in this direction than ever before, especially in fitting up markets. The average meat market to-day is palatial in its equipment, and if the statement of those who have spent money in that direction is any clue, they must find it profitable to get away from the old ideas. There is an increasing demand for large sectional Refrigerators for use in connection with artificial refrigeration. Formerly this was looked after by the Ice Machine man, who generally had a Refrigerator built on the spot. It seems, however, that sectional coolers for this work are coming more into vogue.

A Michigan manufacturer writes:

The trade is demanding not only a better grade of Refrigerators in point of quality but more of the larger sizes as well. Both our foreign and domestic trade are alike in this respect. We have been unable to fill orders for our larger goods as promptly as we would like, for the reason that orders for the larger and better sizes were far in excess of our anticipations.

Most makers agree that the consumer gets better value for his money in the higher grades of goods. One says:

We are very much pleased to note that the consumer is purchasing a better class Refrigerator than for the past three years. Our grade A we sell on a certain basis; grade B at 10 per cent. less, and we believe that grade A will wear or last the consumer at least 40 per cent. longer than grade B.

The Increased Cost of Material

used in manufacturing Refrigerators is the consideration most actively affecting the industry at the present time. This influence is only slightly reflected as yet in the cost of the finished product. Since 1898 ash lumber, the commodity most used in construction, has gone up from $11.50 to $25.50 a thousand; shipping culls from a range of $4 to $5.50 to from $9 to $12 a thousand. Sheet zinc in 1898 was 4¼ to 4½ cents a pound; to-day's market price is nearly double. Labor is anywhere from 25 to 35 per cent. higher, according to the section. Galvanized iron—a small item, it is true—has advanced 22 per cent., and copper, which is required for the brass Hardware, Cooler Cocks, &c., about 70 per cent. In view of these changes a material advance in Refrigerators is considered necessary by manufacturers who have been making up their balance sheets and studying their costs for the coming year. Western manufacturers especially are apparently unanimous in the decision that they must get larger returns on their output during 1906. As indicating the

Tendency to Higher Prices

the following opinions may be quoted:

Refrigerators are sold too low for a fair margin of profit to the manufacturer, and there is bound to be a slight advance in price in the near future, as the cost of goods has been gradually increasing from season to season.

We should judge by the increased cost of labor and material that prices on Refrigerators must certainly advance, as we are satisfied that there are many manufacturers who are not making any money at the prices which they are getting for their product.

There seems to be a general tendency on the part of the manufacturers to advance prices at least 5 per cent. over last season. We believe that the trade is prepared for this advance and will appreciate that it is a moderate one, not covering the increased cost of making the goods.

There has been an advance in prices, an effort being made to get 10 per cent. over last season. The advance in the price of zinc, lumber and other materials, as well as labor, is such that this seems necessary. The trade generally seem to be willing to pay this advance, and in fact we think they were expecting it.

Our prices are being advanced from 5 to 10 per cent., according to the several grades and classes. Notwithstanding this, orders from our old customers have been readily secured and their specifications have been very much in excess of those which we have obtained during the past three years.

A Large Eastern Manufacturer

in reviewing the past season and commenting on the present situation and prospects says:

The financial results of the past season's business have been anything but satisfactory to Refrigerator manufacturers, as owing to the largely increased cost of production the margin of profit has been insignificant and has not yielded a fair return on the capital invested. Having felt the pressure keenly, and realizing, with the promise of a still further increased cost staring us in the face, we must in order to exist demand legitimate prices, a general advance has been decided on.

MANUFACTURERS HAVE FAILED TO TAKE ADVANTAGE.

The selling price of Refrigerators has not, during the past five or six years, kept pace with the enhanced cost of production or with prices commanded by other articles of manufacture, notably Wooden Ware, chairs and furniture generally, into which a much smaller and less costly variety of material and labor enters. Refrigerator manufacturers have failed to take advantage of the prosperous times and the natural increased demand for larger and better grades of goods, with the result that their profits have steadily and surely vanished into thin air, while in some cases a portion of the trade has undoubtedly been done at a positive loss. This decline was noticeably felt at the close of the season of 1904, and palpably so when the annual statements for 1905 were recently made up, showing the manufacturers the dangerous ground on which they stood. Labor and lumber are important factors in the production of Refrigerators, and in regard to the steadily increased cost of those items comment is unnecessary.

THE DEALER HAS BEEN PROTECTED.

Many other supplies used by Refrigerator manufacturers are subject to advance without notice, and they have so far been unprotected against increased cost of production, while the dealer who placed his order during the fall or winter for spring shipment has invariably been protected throughout the season, no matter what the enhanced cost to the manufacturer might be. Dealers know full well the conditions that exist in the labor and supply market, and must realize their effect on the cost of production to the manufacturer, and will no doubt willingly pay the reasonable advance which the Refrigerator manufacturers now find it necessary to demand in self protection.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

FROM SMITH BROS, Kahlotus, Wash., who will open a Shelf Hardware, Stove, Paint, Implement and Sporting Goods store in their new building now in course of erection.

FROM E. W. F. MURPHY, 42 Chauncey street, Boston, Mass., who has started in the commission business and is soliciting orders from the Hardware merchants of New England. He will be pleased to receive catalogues and quotations relative to Hardware specialties as well as staple goods.

FRANCIS BANNERMAN, now at 579 Broadway, New York, will occupy, some time in November, the entire five-story building at 501 Broadway, near Broome street, as soon as the necessary repairs and changes adapting the building to his purposes can be effected. Mr. Bannerman has long made a specialty of all kinds of Military Goods from Government auctions, &c., ancient armor, firearms and other implements of war, which are sought after both for actual, practical use and ornamental and decorative purposes.

MANUFACTURERS AND RETAILERS ON CATALOGUE HOUSE QUESTION.

JOBBERS AND RETAILERS ARE RESPONSIBLE.

To the Editor: We have read with interest much that has recently been written about catalogue houses. We have had experience with these houses and see no reason, other than sentiment, why they should not be patronized. So far as we have been able to determine they have always charged a fair profit on their goods. We have never sold a dollar's worth of our product to catalogue houses, but we know, from prices which they quote, that they are making from 30 to 40 per cent. profit on goods in our line. We certainly see no unfair underselling in that. We claim that to be a fair profit for any dealer to make. On the other hand we have seen invoices from local dealers to customers bearing from 100 to 150 per cent. profit on the same goods. Have these local dealers any right to cry if their customers go to the catalogue houses with their orders in future?

In our opinion jobbers and retailers have only themselves to blame if catalogue houses get their customers. Such business methods, incapacity and the spirit of "graft" are largely responsible for their lack of success.

A BIT OF EXPERIENCE.

To show some of the methods which result in making customers for catalogue houses we will relate a bit of our own experience: Some time ago we asked a local wholesale and retail Hardware store for a quotation on a quantity of 4-inch galvanized eave trough which we wanted for a new building. We were informed that the price was $1.50 per length of 10 feet. We were astounded and demanded the reason for such an outrageous charge. The reply was that an agreement with a local union of tinsmiths and plumbers made it necessary to ask the price named. We immediately ordered the trough of a catalogue house and paid 35 cents per length! Since that time we have ordered our supplies from the same source whenever we could do so at a profit, or on equal terms. Why shouldn't we? Our local Hardware house had conspired with the tinners' association to rob us by charging a profit of over 400 per cent. It is such conduct as this that has given the catalogue houses their "boost." One of the things which commends this catalogue house with which we deal is its absolute honesty. In every way, prices and quality, we find it entirely reliable.

LEGITIMATE COMPETITION.

We believe the catalogue house to be entirely legitimate. It is the result of the normal development of the country. Its methods are honest, honorable, fair. It cannot fairly be accused of underhand methods. The writer can remember the time when there were no large cotton mills as at present, but almost every stream in the North that could develop water power had on it a little cotton mill with a capital of $25,000 or $50,000. Times changed. Cotton mills were erected at advantageous points with capital of millions and the little mills on the country streams went, one by one, to the wall. Can we say that the larger mills were unfair to the smaller, and that they should be abused for driving the little fellows out of business? The time is surely coming when the wholesale houses of to-day will either consolidate at advantageous points and adopt the methods of the catalogue houses or go to the wall. To fight dishonorable and unfair competition is right, but to fight against honorable and fair methods is, indeed, "kicking against the pricks."

A RESOLUTION

by a Hardware association that in future they will treat all men honestly, charge only fair profits, discriminate against none and favor none; that they will give to the small dealer the same price and terms that they do to the large one, would be worth a dozen resolutions calling down anathemas upon the heads of the catalogue houses and invoking Federal authority in an attempt to stop them from educating their customers in the matter of current prices.

PRICE EDUCATION.

The writer recalls an incident of years ago when he first went into the Hardware business. His old employer most thoroughly "combed down" a representative of *The Iron Age* because that paper published prices and thus prevented the big profits the firm was accustomed to make. The representative manfully defended the policy of his paper, and he was right. What does an honest dealer care how thoroughly his customers are educated in the matter of prices by the catalogue houses provided he has the same goods at the same prices on his shelves?

Brethren of the Hardware trade, take a bit of advice: Adopt the Golden Rule, brush up your business methods, and take our word for it if you have the capacity you will win out even though you don't destroy the catalogue houses.

A HARDWARE MANUFACTURER.

JOBBERS TRYING TO CREATE A WRONG IMPRESSION.

To the Editor:—The writer feels that jobbers are trying to create a wrong impression in regard to various matters connected with this catalogue house discussion. For instance take their demand that the manufacturers immediately correct the catalogue house evil, laying the blame on them, while the catalogue houses we all know were the jobbers' best customers. They built them up, and after they got beyond their control the jobbers decided that the manufacturers were to blame and that they should check the evil.

They complain about the manufacturers selling the 5 and 10 cent and racket stores, and yet 90 per cent. of the 5 and 10 cent store goods are sold by jobbers of various kinds.

Jobbers blame the manufacturers for selling goods to premium concerns and we all know that nearly all of the premium concerns, especially the small users, draw their supplies from the jobbers. Yet the jobbers demand that manufacturers correct this evil.

At the recent St. Louis meeting through a very deftly worded resolution they tried to poison the mind of the retailer regarding the manufacturer's position on private brands and deprecate the connection of the catalogue house with private brands. Yet have they not cemented the names together? I think it is time that their attention should be called to the same.

This resolution is most unfair and unreasonable and any one reading it who is at all familiar with the facts can but feel disgusted to think that an intelligent body of men would try to bring odium upon manufacturers who are working in harmony with them on lines that are practical when they (the jobbers) have for years been connecting private brands with the catalogue house question, and to regret that manufacturers who are unfriendly to the movement should connect the two is adding insult to injury.

NEW ENGLAND.

PRIVATE BRAND QUESTION INJECTED BY JOBBERS.

To the Editor: We have patiently waited for some manufacturer to comment on the position taken at the recent meeting in St. Louis of the Joint Catalogue House Committee when the committee "deprecated the fact that the private brand question should have been injected into the catalogue house discussion by those who are unfriendly to the movement," but as in the past manufacturers have quietly permitted the jobbers to advertise themselves as being the "retailers' only friend."

For years the jobbers through their salesmen, by circulars and in trade papers have exerted themselves to the utmost to convince the retail merchants that by handling private brands they would free themselves from catalogue house competition. The merchants, both wholesale and retail, have talked at their conventions until they have cemented the two subjects together; then to regret that "those who are unfriendly to the movement" should think of connecting the two subjects is the most absurd resolution, considering the circumstances, any sane body of men ever thought of approving.

The resolutions adopted at Hot Springs, Va., by the manufacturers regarding private brands and thoroughly

discussed in the trade papers have proved conclusively that the only object the jobber has for favoring private brands is to free him from competition and enjoy a greater profit than can be obtained in any other way.

Generally speaking, the retailers, jobbers and manufacturers are working in harmony, but if the jobbers continue to create trade conditions and, when found injurious, claim others are responsible and demand some one else bear the odium as well as the burden of correcting conditions that should have been avoided, it will prove a boomerang.

No one denies that the jobber did as much as any one to build up the catalogue houses. In their infancy the jobbers "fell over themselves" to sell this trade.

They have for several years connected the catalogue house subject with private brands. As noted before, jobbers of various lines sell the "bargain stores," five and ten cent counter stores, the smaller department stores and similar classes of trade nearly all their goods, and when the retail merchant complains the jobbers immediately say the manufacturers are wholly at fault and it is up to them to correct present unhealthy (for the retailer) business methods, and, posing as the retailers' friend, with tears in their eyes, regretting (?) all this, gain Mr. Retailer's sympathy, and then both demand that the manufacturers immediately change the present illegitimate channels of trade.

If the jobbers and retailers continue these methods can they expect the continued support and co-operation of the manufacturers? Furthermore, will they deserve it? Lastly, will they get it? ED. FORD.

QUESTION SHOULD NOT HAVE BEEN AGITATED IN PUBLIC PRINT.

A Missouri merchant calls attention to a paragraph which recently appeared in a newspaper published in a city in that State to the effect that a well-known Chicago catalogue house had leased premises in that city and would shortly open a branch house there, Hardware and Agricultural Implements being the principal lines handled. The merchant then makes the following comments:

The writer has always agreed with those who have thought it unwise for the retail Hardware merchants to agitate the catalogue house question in public print. Such a course was bound to concentrate the fire of the catalogue houses on the retail Hardware merchants, who meanwhile would not have gotten any more benefit than they would have received from an equally earnest but less public effort by persons who had more at heart the object of permanently benefiting the Hardware trade and less that of advertising themselves and their business. In the end the retail dealer has to bear the brunt of it. The catalogue house was of course bound to retaliate on the Hardware dealer.

Those of us who are doing business in this vicinity are not quite as appreciative of the "good work" that has been done on this subject as no doubt we ought to be.

A MISSOURI RETAILER.

LEARNING FROM THE MAIL ORDER HOUSES.

To the Editor: There is little profit derived from pulling wool over one's own eyes, and that acquired by deceiving others is much less on the whole than it sometimes seems. A study of some of the talk of some retailers about mail order houses leads one to think that the story that used to be told in our school books about ostriches hiding their heads when hard pressed might aptly apply to some shorter necked bipeds.

The mail order houses do not mean death to the small retailer but new life. They are an accomplished fact and one that cannot be obviated by closing our eyes and crying fraud. Let us then open our eyes and learn what we may learn.

It would seem to the writer that the mail order houses mean death not to the retailer but to the credit system (and who would not be ready to contribute rag time music for its funeral?) and to many of the old time petty "tricks of the trade."

SIZE HAS MANY DISADVANTAGES.

These houses have an advantage, mainly due to their size, in buying goods, but there are many disadvantages attendant on size, and they lack that intimate personal acquaintance with their customers which is priceless to the retailer.

It is impossible for the retailer to buy and sell on credit and come anywhere near meeting their prices; but abolish this system and even the smallest dealer can pretty nearly meet them, while he holds nearly every other point in the game—the personal equation, the chance to show the goods and the ability to deliver them immediately—all of which count for much.

THE MOST EVIDENT LESSON

to be learned from these houses is that we must sell for cash only and that we must be careful that our goods are exactly as represented. Many buyers know little about the quality of goods by their looks, and depend largely for such knowledge on the representations of the dealer. A man who buys considerable Hardware and who is a better judge of its quality than the average buyer recently told the writer that he was more sure of getting just what he bought from a mail order house than from any retailer he knew.

ANOTHER POINTER.

If you will note the catalogue of any thoroughly reliable mail order house, and such only are the successful ones, you will observe that great care is taken in writing descriptions of goods that such descriptions shall be exact and without the slightest sign of quibble or evasion. How many small retail dealers use the same care in describing goods?

One retailer sold some Sheet Iron, and when the customer demurred at the price, 8 cents per pound, stated that this was a specially fine article of "Sheet Steel," and that, while common "Sheet Iron" might be bought much cheaper, 8 cents was a very low price for this. The customer was better posted than the retailer thought, and while he paid the price without further question he bought his next bill of "Sheet Iron" somewhere else.

THE PUBLIC IS BECOMING POSTED.

The same dealer when asked the price of a certain Dry Paint said: "I'll sell it to you for just what it cost me—I'll show you the bill." He showed the bill, which was made at list, and didn't know that the prospective customer noticed as he folded the footing under that the discount was 65 and 5. This dealer is wondering why that man doesn't call on him any more.

Customers don't know all about goods, but they are getting educated, and the very best weapon with which to fight the mail order houses is "a square deal."

MINNESOTA.

A DISCOURAGED MANUFACTURER.

A manufacturer of a certain Hardware specialty, who is desirous of carrying out the policy of distributing his goods through legitimate Hardware channels, some time since sent out 200 free samples of the article to as many Hardware merchants, prepaying the express charges. The total expense of sending out each sample was not less than 75 cents. Replies were received from less than 5 per cent. of the merchants thus addressed, although request was made in each instance to acknowledge receipt of sample. This experience is referred to by the manufacturer as very discouraging and as suggesting that some other means be employed for introducing an article to the public, the department stores, for example. He believes that if the samples, &c., had been sent to 200 department stores he would have received replies from nearly all of them and orders from many. Well regulated department stores, he declares, make it a rule to answer all correspondence, while his experience with the average Hardware merchant has been that it is rather the exception than the rule to answer letters soliciting business along "legitimate" lines. Who, then, is to blame, he asks, if the Hardware merchant finds the manufacturer soliciting the co-operation of the department store in disposing of his goods?

FACTORY COST AND BUSINESS METHODS.

AN UNUSUAL PAYROLL FORM.

A RATHER elaborate form of payroll is gotten up by a large New England manufacturing house. This payroll, which is of the four-page form, intended to serve four weeks, is illustrated in Fig. 1. It will be noticed that one of the pages is much wider than the other. It is made in this manner to avoid the necessity of writing the names on the third and fourth pages. A reproduction of the ruling of a part of the full width pages is shown in Fig. 2.

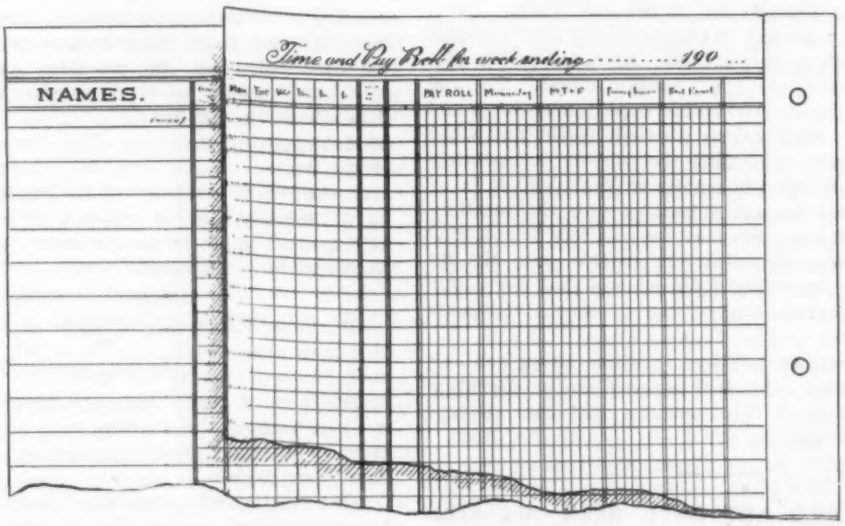


Fig. 1.—Four-Page Payroll Intended to Serve for Four Weeks.—The Sheets Are Attached to a Stub.

In this factory each employee is known by a number, and a column for this is provided at the right of the wide column for the names. To the right are columns to show the number of hours worked each day and the total number of hours for the week. In the column headed "Pay-roll" is placed the total amount of money a man makes during the week. When a man is employed on piece work several lines are sometimes used to keep the record of his earnings. The horizontal lines for the names are ruled in red, green and purple so as to be easily followed across the page.

For the office account the money earned is charged up also under one or more of the heads "Manufacturing," "Machinery, Tools and Fixtures," "Factory Expense" or "Real Estate," according to the character of work which the man has done. These sheets are each stitched to a stub, as shown in Fig. 1, in which four holes are perforated. They are afterward bound and kept as a permanent record.

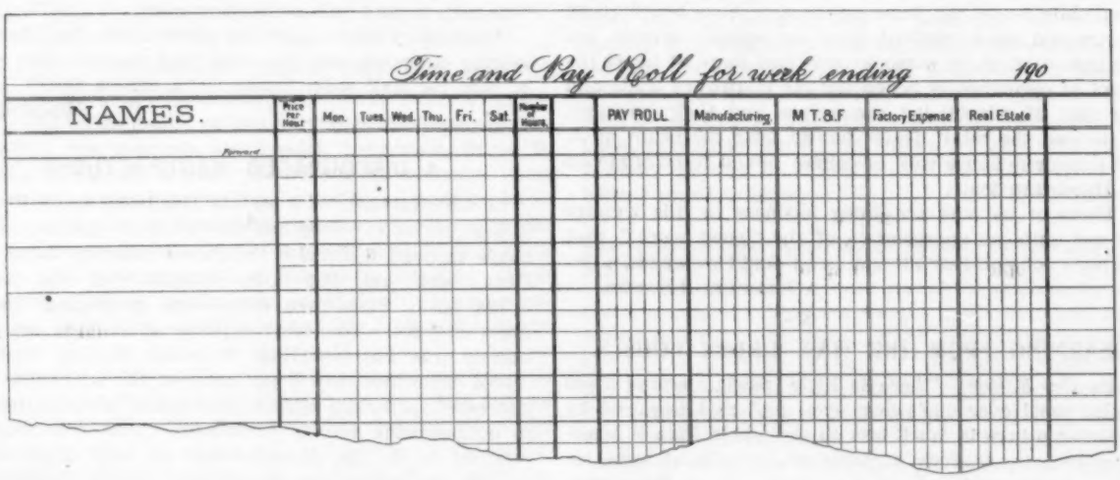


Fig. 2.—Ruling of Part of the Full Width Page.

NEW ORLEANS NOTES.

FROM A SPECIAL CORRESPONDENT.

NO feature ever brought to light in the development of the Hardware business in New Orleans has been more striking than the rapidity with which the trade here recovered from the partial paralysis suffered when fever infection was first announced. Roughly stated, the summary of the wholesale Hardware trade, domestic and foreign, at the present time, taken from expressions of all the prominent merchants of the city, places the volume of trade for the past fortnight at from 5 to 7 per cent. ahead of what was current at this time one year ago. The lines that are leading are: Roofing, Bar Iron, Nails, Heavy Hardware and Building Hardware and Supplies of all sorts and kinds. This of course is to the local and domestic trade. In general export business Mexico has made a sudden leap into notice within the past two weeks and has called for heavy shipments of Lighter Machinery, Farm and Mill Supplies, and considerable quantities of Building Material. There has been the usual run of Panama Canal material.

After Ninety Days of Fever.

Such is the city of New Orleans after 90 days of fever. That this is the case with the Hardware trade can be easily understood when it is realized that the bank deposits here are now $10,000,000 over what they were one

year ago; that exports have almost doubled, being a trifle over $3,000,000 more for September, 1905, than for September, 1904; that real estate has increased instead of declined in value; that imports have increased instead of decreased; that all values have risen in the face of yellow fever, rather than fallen.

This condition of affairs has hardly been realized, even in New Orleans. Here the retail business in the Canal street dry goods shops, &c., has suffered; there have not been the crowds on the streets, the hotels have been deserted, and people did not realize that out in the freight yards, in the warehouses, and on the river front business, as opposed to travel, was going on very much as usual. It has become the custom for business men to look down in the mouth, and to say: "Well! What can you expect? This is yellow fever time." However, when the end of September came and official statistics were produced from the various organizations it developed that many persons had been talking "calamity" for the purpose of subduing some one else's optimism, at the same time keeping their own roseate hopes keyed well up. The consequence is no one has been badly hit. No one has in panic dumped his holdings. Securities, industrial and financial, have risen, realty has appreciated and the general business outlook is excellent.

Building activity promises much for the coming three months. Large contracts are slated to be let that will furnish a big trade for the local Hardware merchants, and indirectly a considerable demand for certain sorts and lines of household and interior fitting goods as well as for building supplies.

Transportation Facilities.

During the yellow fever times the Mexican-American Steamship Company has instituted a new service to the city of Vera Cruz, Tampico and other Mexican ports, while a local company has established a new line of coast steamers to Florida and Alabama ports. Additional ships have been re-established in the Panama trade. This week Governor Blanchard removed all quarantines against Central America, save such as apply all the year round to ports suspected of being infected with either bubonic plague or Asiatic cholera.

The recent addition of the first of two new steamships that are to be placed on the Mexican-American trade route to Tampico, Vera Cruz, and the Mexican Central system was made the occasion for an expression of trade views by the export managers for Stauffer, Eshleman & Co., and A. Baldwin & Co., both of whom declared that the business of New Orleans with Mexico had grown fully 200 per cent. in three years and that the possibilities were illimitably extended for those firms that would go down into these countries and show the people the goods and the prices and the people selling them. The new steamships will cut down the water route to Mexico by one day. Both ships are equipped for handling the heaviest machinery, &c., that is shipped into Mexico, and both intend to cater to the Hardware and machinery people who are selling to Mexican mining and farming interests.

Lines as they Run.

Mississippi first enforced the freight quarantines. For a time the State turned down even a carload of disinfectants if they came from New Orleans. Then her merchants wanted goods, and they began to buy, ordering as circumstances demanded, over long distance telephone, by telegraph, or by mail. During the past month, to the Mississippi hill country implements for fall plowing, for the harvesting of late feed stuff crops, &c., have been going fairly well, while building supplies of all kinds have been extremely salable. Roofing, Nails and Builders' Supplies have probably led everything else to the hill section. In the Mississippi lowlands, usually the most liberal buyers, farm supplies, &c., have distanced building materials, for the cotton crops there, while very short, bid fair to bring good prices and the farmers have had the good credit to enable them to make proper preparations for another year.

In Louisiana the same situation has largely existed. Into all the sugar and cotton country delayed autumn sales of mill supplies are just beginning. The quarantines, keeping the repair gangs, mechanics, &c., in the towns, have militated against the repair work with which the demand for these supplies always goes. However, the saw mill district is buying more than its share of mill supplies, their mechanics being well at hand and not delayed or hampered in the least.

From all parts of the tributary territory come reports that the trade is heavily oversold, stocks depleted, and buyers anxiously awaiting the time when they can get to the markets and see and buy for themselves.

Implements are just beginning to run heavily, and orders are coming in even in advance of the traveling men who will be on the road before the end of this month. Of course the heavy October movement in this line is largely dependent on the traveling men and is therefore held back this season, but the catalogue and the personal letter are doing wonders.

In the City

the fall movement in household goods, &c., is delayed because there has not been the amount of house moving and refitting there would have been had there been no yellow fever. Persons have been doubtful about moving into new localities for fear of getting into houses not sufficiently or properly fumigated. The authorities say there is no danger, but a degree of fear lingers anyway. A large element has stayed away from home too late to move and has had to keep old quarters. Hence with little moving there is less buying of new supplies.

A great number of the Hardware and machinery men who have been away during the summer are returning to the city, and New Orleans is beginning, with its street activity, to look less like a "fever city," as some of the "yellow journals" have called it, than it has looked all summer.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our catalogue department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made besides the brief reference to the catalogue or price-list in this column.

EUREKA REFRIGERATOR COMPANY, Indianapolis, Ind.: Circular entitled "Arguments in Favor of Eureka Refrigerators."

DAVIS-HANSEN COMPANY, Oshkosh, Wis.: Catalogue devoted to Iron Pumps, Cylinders, Well Supplies, &c The Pumps include Force and Lift for hand and wind mills, Set Length Pumps, Pitcher Spout and Hand Force Pumps, &c. A feature of the Oshkosh line of Pumps is a brace which takes the entire strain of the fulcrum, so that it does not come on the cap and standard.

THE BALDWIN FORGING & TOOL COMPANY, Columbus, Ohio: Price-list of Shovels, Spades and Scoops.

THE CLASON ARCHITECTURAL METAL WORKS, Providence, R. I.: Circular relating to Snow Guards for new roofs and roofs already laid.

MOTT, LAURITZEN & BRENIMAN, Sandusky, Ohio; Circular illustrating and describing their One Minute Washing Machine.

BIGELOW & DOWSE COMPANY, Boston, Mass.: Illustrated catalogue of Winter Goods, comprising nearly 250 pages, accompanied by a price-list of approximate values of the goods therein shown.

THE BERGER MFG. COMPANY, Canton, Ohio: Berger's Metal Tiles are illustrated and described in a catalogue. They are made of copper, zinc, galvanized iron and terne tin plates in a variety of patterns. The Spanish Tile Roofing is referred to as being used on many public buildings and residences.

The Hardware business of the F. R. Button estate, Brandon, Vt., has been bought by E. H. Button, who will conduct it under his own name.

LANSING WHEELBARROW COMPANY'S CATALOGUE NO. 8.

LANSING WHEELBARROW COMPANY, Lansing, Mich., has issued catalogue No. 8, relating to Wheelbarrows, Warehouse Trucks, Steel Road Scrapers, Hand Carts, Fence Machines, Horse Pokes, Steel and Wood Masons' Hods, Rubber Tired Wheels, &c. Important additions to their former line are as follows: Gasoline Engine Truck, heavy and strong to withstand the vibrations of a gasoline engine when mounted on it; Tonawanda Lumber Cart, to which the company has added roller bearings and also built it with wooden wheels; solid steel Road Scraper pressed from a heavy plate of hardened steel of tough quality, shaped throughout on scientific principles to utilize the strength of the steel to the best advantage, and Panama Wheelbarrow, similar to the company's B1 Climax Barrow, but having wood braces instead of the steel and an unpainted frame. The Barrow is designed principally for the use of contractors.

MISCELLANEOUS NOTES.

Steel Cisterns.

The O. K. Harry Steel Works, St. Louis, Mo., is manufacturing a steel cistern to replace those of brick and stone construction. The cisterns are built in varying sizes of 16-gauge galvanized corrugated sheet steel and are reinforced with steel bands. Tanks of similar construction, only smaller in size, are also being manufactured by this company for use as ash pits.

Veterinary Files and Floats.

The Tragle Mfg. Company, Reading, Pa., in its catalogue No. 7, recently issued, calls attention to several new styles of horse mouth floats, files and rasps, which are said to include every requirement of veterinarians and horsemen. The company states that it gives its exclusive attention to this line and carries a large and complete stock from which all orders can be promptly filled.

Shovels.

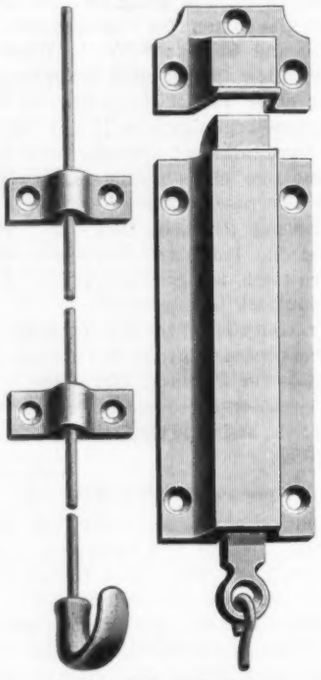
The H. M. Myers Company plant of Ames Shovel & Tool Company, Beaver Falls, Pa., is from time to time adding new patterns to its line of shovels. Within the past year the company has been making for New York State trade what is known as the York or narrow pattern shovel, which is used through that State for ditching and draining purposes.

Lawn Mowers.

Whitman & Barnes Mfg. Company, Chicago, Ill., and 111 Chambers street, New York, has increased its line of lawn mowers and strengthened and otherwise improved various features of construction in these lines as suggested by experience. The ball bearing feature has been added to all the mowers but the Norka, brought out last year and the cheapest in the company's line. The latter style is made only with parallel bearings. The line now consists of the W. & B. high wheel mower, with both parallel and ball bearings; the New Electric and New Diamond, made with both kinds of bearings, the two latter having recent improvements, and the Norka.

Spring Bolt with Rod.

Sargent & Co., New Haven, Conn., and 149-153 Leonard street, New York, have just issued extra page 568-B to their catalogue, on which are shown various spring bolts with rods, one of which is here illustrated. This bolt is offered as an improvement on the chain bolt, making it easy to operate it without the annoyance of a rattling chain. The bolt illustrated is made of cast bronze metal, with bronze metal rods, in the following finishes: Highly



Spring Bolt with Rod.

polished, antique copper and antique copper sand finish, in 2, 3, 4 and 6 inch sizes. This bolt is also made in the same metal and finishes, but extra heavy, in 6 and 8 inch sizes. Another group, of cast iron with triangular bolt, is made in 3, 4, 6 and 8 inch sizes, finished in bronze plate, highly polished, antique copper and antique copper sand finish. All are packed with screws to match and have rods 7 feet long, the material of which corresponds to the bolts. Provision is made for supplying shorter rods, if so ordered, at a less price.

Bristol Special Bait Casting Rod No. 27.

The steel rod shown herewith has agate guides which are German silver mounted, made high, with large openings. The top is a special offset agate style, German silver mounted. With these trimmings the friction of the line is reduced to a minimum, and they are alluded to as strong and durable. The handle is 14 inches long, with double cork grips and the company's patent detachable finger hook. The rods are furnished in 4½, 5 and 5½ foot lengths, weighing about 9¾ ounces. Other lengths can be supplied to order. The rods are put on the market by the Horton Mfg. Company, Bristol, Conn.

Bristol Special Bait Casting Rod No. 27.

Grand Rapids All Steel Sash Pulley No. 17.

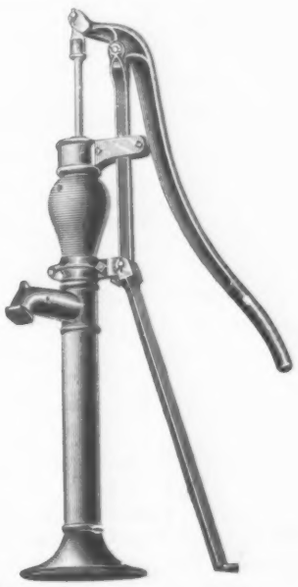
The sash pulley herewith illustrated is put on the market by the Grand Rapids Hardware Company, Grand Rapids, Mich., and is made in the common sense cast iron

Grand Rapids All Steel Sash Pulley No. 17.

pattern. The rear of the wheel is well and amply surrounded so that the cord cannot get out of the groove and wedge. The groove is deep, to prevent the cord getting out, and polished to insure against cutting and wearing out the cord. The wheel has patented eyelets so that it will not split and is guaranteed to carry any weight a sash cord will support. A polished steel bushing runs on a turned and polished steel axle to afford an everlasting bearing. In addition the manufacturer states that the pulleys are unbreakable in transit or in fastening them, that they are light and strong, that they are uniform in size, every one fitting the mortise, and that each pulley is its own marker.

Oshkosh Long Fulcrum Pump.

Davis-Hansen Company, Oshkosh, Wis., is manufacturing the pump shown in the accompanying cut. It is made with a long fulcrum of malleable iron, which rests directly on the brace, thus relieving the cap and standard of all strain and wear. If it is desired to move the handle to the back or left side of the pump it is only necessary to loosen two nuts, when the cap, handle, fulcrum and brace can be swung into any desired position, leaving the brace always under the handle to take all strain from the standard. It is remarked that the long fulcrum guarantees an easy working pump standard. Double and single acting force pumps for hand and wind mill use, also lift pumps with standards, are made with the fulcrum resting on the brace.



Oshkosh Long Fulcrum Pump.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal
Linseed, City, raw	45 @46
Linseed, City, Boiled	47 @48
Linseed, State and West'n, raw	43 @44
Linseed, raw Calcutta seed	@62
Lard, Extra Prime, Winter	60 @62
Lard, Extra No. 1	47 @50
Lard, No. 1	37 @42
Cotton-seed, Crude, f.o.b. mills	18½@19½
Cotton-seed, Summer Yellow, Prime	25½@26
Cotton-seed, Summer Yellow, off grades	@..
Sperm, Crude	55 @..
Sperm, Natural Spring	@..
Sperm, Bleached Spring	@..
Sperm, Natural Winter	60 @63
Sperm, Bleached Winter	63 @65
Tallow, Prime	51 @53
Whale, Crude	@..
Whale, Natural Winter	42 @44
Whale, Bleached Winter	44 @46
Menhaden, Brown, Strained	27 @28
Menhaden, Light, Strained	28 @29
Menhaden, Bleached, Winter	30 @31
Menhaden, Ex.-Bld., Winter	31 @32
Menhaden, Southern	16 @16½
Cocoanut, Ceylon	℔ lb 6¾@6½
Cocoanut, Cochin	℔ lb 8½@8¾
Cod, Domestic, Prime	31 @36
Cod, Newfoundland	38 @40
Red, Elaine	29 @31
Red, Saponified	℔ lb 3¾@3¾
Olive, Italian, bbls	63 @65
Neatsfoot, prime	49 @50
Palm, Logos	℔ lb 6¼@..

Mineral Oils—

Black, 29 gravity, 25@30 cold test	℔ gal. 10½@11½
Black, 28 gravity, 15 cold test	11½@12½
Black, Summer	10½@11½
Cylinder, light filtered	18 @19
Cylinder, dark filtered	16 @17
Paraffine, 903-907 gravity	12½@13
Paraffine, 905 gravity	11½@12
Paraffine, 883 gravity	9¼@9½
Paraffine, Red	11½@13

In small lots ⅛¢ advance.

Miscellaneous—

Barytes, White, Foreign	℔ ton $17.50@19.00
Barytes, Amer. floated	℔ ton 18.00@19.00
Barytes, off color, No. 2	℔ ton 13.50@15.00
Chalk, in bulk	℔ ton 3.00@3.25
Chalk, in bbls	℔ 100 lb .. @.35
China Clay, English	℔ ton 11.00@17.00
Cobalt, Oxide	℔ 100 lb 2.50@2.60
Whiting, Common	℔ 100 lb .43@.48
Whiting, Gilders	℔ 100 lb .50@.55
Whiting, Ex. Gilders	℔ 100 lb .55@.60

Putty, Commercial—℔ 100 lb

In bladders	$1.65 @1.85
In bbls. or tubes	1.15 @1.35
In 1 lb to 5 lb cans	2.60 @2.90
In 12½ to 50 lb cans	1.45 @1.85

Spirits Turpentine—℔ gal.

In Oil bbls	70 @70½
In machine bbls	70½@71

Glue—

	℔ lb
Cabinet	11 @15
Common Bone	7 @9
Extra White	18 @24
Foot Stock, White	11 @14
Foot Stock, Brown	8 @11
German Hide	12 @18
French	10 @40
Low Grade	9 @12
Irish	13 @16
Medium White	14 @17

Gum Shellac—

	℔ lb
Bleached Commercial	37 @38
Bone Dried	47 @48
Button	36 @45
Diamond I	@55
Fine Orange	45 @47
A. C. Garnet	@44
D. C.	60 @..
Octagon B	@52
T. N.	40 @42
V. S. O.	58 @..

Colors in Oil—

	℔ lb
Black, Lampblack	12 @14
Blue, Chinese	38 @46
Blue, Prussian	32 @36
Blue, Ultramarine	13 @16
Brown, Vandyke	11 @14
Green, Chrome	10 @15
Green, Paris	@24
Sienna, Raw	12 @15
Sienna, Burnt	12 @15
Umber, Raw	11 @14
Umber, Burnt	11 @14

White Lead, Zinc, &c.—

	℔ lb
Lead, English white, in Oil	9¼@9¾
Lead, American white, in Oil:	
Lots of 500 lb or over	@6½
Lots less than 500 lb	@7
In Barrels	@6
Lead, White, in oil, 25 lb tin pails, add to keg price	@½
Lead, White, in oil, 12½ lb tin pails, add to keg price	@1
Lead, White, in oil, 1 to 5 lb ass'ted tins, add to keg price	@1½

Lead, American. Terms: For lots 12 tons and over ¼¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.

	℔ lb
Lead, White, Dry in bbls	@6
Zinc, American, dry	4½@4¾

Zinc, French:

Paris, Red Seal, dry	9¼
Paris, Green Seal, dry	10¾
Antwerp, Red Seal, dry	8¼
Antwerp, Green Seal, dry	9¾

Zinc, V. M. French, in Poppy Oil: Green Seal:

Lots of 1 ton and over	12½@13
Lots of less than 1 ton	12¾@13¼

Zinc, V. M. French, in Poppy Oil: Red Seal:

Lots of 1 ton and over	11¼@11¾
Lots of less than 1 ton	11½@12

Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades. 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors—

	℔ lb
Black, Carbon	5 @10
Black, Drop, American	4 @6
Black, Drop, English	5 @15
Black, Ivory	16 @20
Lamp, Com	4½@6
Blue, Celestial	4 @6
Blue, Chinese	29 @32
Blue, Prussian	27 @30
Blue, Ultramarine	4½@15
Brown, Spanish	½@1
Carmine, No. 40	$3.50@3.60
Green, Chrome, ordinary	3½@6
Green, Chrome, pure	17 @25
Lead, Red, bbls., ½ bbls. and kegs: Lots 500 lb or over	@6½
Lots less than 500 lb	@7
Litharge, American, bbls	6 @6½
Ocher, American	℔ ton $8.50@16.00
Ocher, American Golden	2½@3½
Ocher, French	1¼@2½
Ocher, Foreign Golden	3 @4
Orange Mineral, English	8 @10
Orange Mineral, French	10¾@12¾
Orange, Mineral, German	8¾@10¾
Orange Mineral, American	8¾@8½
Red, Indian, English	4½@8½
Red, Indian, American	3 @3¼
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer.	℔ 100 lb $0.50@1.25
Red Venetian, English	100 lb $1.15@1.75
Sienna, Italian, Burnt and Powdered	3 @9¼
Sienna, Ital., Raw, Powd	3 @8½
Sienna, American, Raw	1½@2
Sienna, American, Burnt and Powdered	1½@2
Talc, French	℔ ton $15.00@30.00
Talc, American	℔ ton 15.00@25.00
Terra Alba, French	℔ 100 lb 90 @1.00
Terra Alba, English	℔ 100 lb 90 @1.00
Terra Alba, American, ℔ 100 lb., No. 1	60 @70
Terra Alba, American, ℔ 100 lb., No. 2	45 @50
Umber, T'key, Bnt. & Pow	2½@3¼
Umber, Turkey, Raw & Pow	2½@3¼
Umber, Burnt, Amer	1½@2
Umber, Raw, Amer	1½@2
Yellow, Chrome	11 @14
Vermilion, American Lead	10 @25
Vermilion, Quicksilver, bulk	@65
Vermilion, Quicksilver, bags	@66
Vermilion, English, Import	75 @80
Vermilion, Chinese	$0.90@1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1905, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Domestic, ℔ doz. $3.00 ..... 33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent 35%
Taplin's Perfection 35%

Ammunition—
See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils ..... ℔ lb 6¾@7 ¢
Hay-Budden, Wrought ..... 9@9¼ ¢
Horseshoe brand, Wrought ..... 9@9¼ ¢
Trenton ..... ℔ lb 9@9¼ ¢

Imported—
Peter Wright & Sons ..... ℔ lb 10½ ¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00 ..... 15&10%

Apple Parers—
See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co. 33⅓%

Augers and Bits—
Com. Double Spur ..... 75@75&5%
Jennings' Patn., reg. finish ..... 50&10@60%
Black Lip or Blued ..... 60&10%
Boring Mach. Augers ..... 70&10%
Car Bits, 12-in. twist ..... 50&10%
Ford's Auger and Car Bits ..... 40&5%
Forstner Pat. Auger Bits 25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list .. 25%
No. 30, R. Jennings' list ..... 40&7½%
Russell Jennings' ..... 25&10&2½%
L'Hommedieu Car Bits 15%
Mayhew's Countersink Bits 45%
Millers Falls ..... 50&2&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits ..... 40&10%
Pugh's Black 20%
Pugh's Jennings' Pattern 35%
Snell's Auger Bits 60%
Snell's Bell Hangers' Bits 60%
Snell's Car Bits, 12-in. twist ..... 60&10%
Wright's Jennings' Bits 50%

Bit Stock Drills—
See *Drills, Twist.*

Expansive Bits—
Clark's small, $18; large, $36 ..... 50&10%
Clark's Pattern, No. 1, ℔ doz. $36; No. 2, $18 ..... 60%
Ford's, Clark's Pattern ..... 60&5%
C. E. Jennings & Co., Steer's Pat. 25%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dble. Cut ..... $3.00@3.25
German Pattern, Nos. 1 to 10, $4.60; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz. .. $5.50@6.00
Ames ..... 25&10%
Universal 20%
Wood's Universal 25%

Ship Augers and Bits—
Ford's ..... 33⅓@5%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' ..... 35&5%
Ohio Tool Co.'s 40%
Snell's 40%

Awl Hafts—
See *Hafts, Awl.*

Awls—
Brad Awls:
Handled ..... gro. $2.75@3.00
Unhdld, Shldered ... gro. 63@66¢
Unhandled, Patent .. gro. 66@70¢
Peg Awls:
Unhandled, Patent .. gro. 31@34¢
Unhdld, Shldered .. gro. 65@70¢
Scratch Awls:
Handled, Com ... gro. $3.50@4.00
Handled, Socket .. gro. $11.50@12.00
Hurwood 40%

Awl and Tool Sets—
See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights:
First Quality $6.75
Second Quality $6.25
Double Bit, base weights:
First Quality $9.00
Second Quality $8.50

Axle Grease—
See *Grease, Axle*

Axles—
Iron or Steel
Concord, Loose Collar ... 4¼@4¾ ¢
Concord, Solid Collar ... 4¾@5¼ ¢
No. 1 Common, Loose ... 3¼@3¾ ¢
No. 1½ Com., New Style 3¾@4¼ ¢
No. 2 Solid Collar ..... 4@4½ ¢
Half Patent:
Nos. 7, 8, 11 and 12 ... 75@75&5%
Nos. 13 to 14 ..... 70&10@75&5%
Nos. 15 to 18 ... 75&10@75&10&5%
Nos. 19 to 22 ... 75&10@75&10&5%

Boxes, Axle—
Common and Concord, not turned lb. 4½@5¢
Common and Concord, turned. lb., 5½@6¢
Half Patent ..... lb. 8½@9¢

Bait—
Fishing—
Hendryx:
A Bait 20%
B Bait 25%
Competitor Bait ..... 20&5%

Balances—
Sash—
Caldwell new list 50%
Pullman ..... 50&10@60%

Spring—
Spring Balances ..... 50&10@60%
Chatillon's:
Light Spg. Balances ..... 40&10%
Straight Balances 40%
Circular Balances 50%
Large Dial 30%

Barb Wire—
See *Wire, Barb.*

Bars—
Crow—
Steel Crowbars, 10 to 40 lb .... per lb., 2¾@3¢

Towel -
No. 10 Ideal, Nickel Plate .. ℔ gro. $8.50

Beams, Scale—
Scale Beams ..... 40&10@50%
Chattillon's No. 1 ..... 30%
Chattillon's No. 2 ..... 40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.85; Tinned $1.00
No. 11 Wire Coppered ℔ doz. $1.10; Tinned $1.20
No. 10 Wire Galvanized .. ℔ doz. $1.75
Western W. G. Co.:
No. 1 Electric ..... ℔ gro. $7.80
No. 2 Buffalo ..... ℔ gro. $9.00
No. 3 Perfection Dust ..... ℔ gro. $8.00

Egg—
Holt-Lyon Co.:
Holt, No. A, Japanned .... ℔ doz. $1.20
Holt, No. 1, Tinned ..... ℔ doz. $1.50
Holt, No. B, Japanned .... ℔ doz. $2.00
Holt, No. 2, Tinned ..... ℔ doz. $2.25
Lyon, No. 2, Japanned .... ℔ doz. $1.25
Lyon, No. 3, Japanned .... ℔ doz. $1.50
Taplin Mfg. Co.: ℔ gro.
No. 60 Improved Dover $6.00
No. 75 Improved Dover $6.50
No. 100 Improved Dover $7.00
No. 102 Improved Dover, Tin'd .. $8.50
No. 150 Improved Dover, Hotel .. $15.00
No. 152 Imp'd Dover, Hotel, T'd .. $17.00
No. 200 Imp'd Dover Tumbler $8.50
No. 202 Imp'd Dover Tumbler, T'd .. $9.50
No. 300 Imp'd Dover Mammoth, ℔ doz. $25.00
Western, W. G. Co., Buffalo $7.00
Wonder (S. S. & Co.) .. ℔ gro. net, $6.00

Bellows—
Blacksmith, Standard List .. 60&10@70&10%

Hand—
Molders—
Bells—
Net Prices.

Inch	6	7	8	9	10
Doz	$4.75	5.70	6.65	7.60	8.85

Inch	9	10	11	12	14
Doz	$8.00	9.00	10.50	12.50	14.50

Cow—
Ordinary goods ... 75&5@75&10&5%
High grade ..... 70&10@70&10&5%
Jersey ..... 75&10%
Texas Star 50%

Door—
Abbe's Gong 45%
Burton Gong 50%
Home, R. & E. Mfg. Co.'s ..... 55&10%
Lever and Pull, Sargent's .... 60&10&10%
Trip Gong ..... 50&10@50&10&5%
Yankee Gong 55%

Hand—
Hand Bells, Polished, Brass .. 60&5@60&10%
White Metal 60%
Nickel Plated .... 50&10@50&10&5%
Swiss ..... 60@60&7½%
Cone's Globe Hand Bells ..... 33⅓@35%
Silver Chime ..... 33⅓@35%

Miscellaneous—
Farm Bells ..... lb. 2¼ ¢
Steel Alloy Church and School 50&10&5@60&5%
American Tube & Stamping Co. Gongs 15%
Table Call Bells ..... 50@50&10%

Belting—
Leather—
Extra Heavy, Short Lap .. 60&5%
Regular Short Lap .... 60&10&5%
Standard 70%
Light Standard ..... 70&5%
Cut Leather Lacing 60%
Leather Lacing Sides, per sq. ft. 22¢

Rubber—
Agricultural (Low Grade) .... 75@75&5%
Common Standard .... 70@70&10%
Standard ..... 60&5@60&10%
Extra ..... 60@60&5%
High Grade ..... 50&5@50&10%

Bench Stops—
See *Stops, Bench*

Benders and Upsetters, Tire—
Detroit Perfected Tire Bender 40%
Green River Tire Benders and Upsetters 20%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.

Bicycle Goods—
John S. Leng's Son's 1902 list:
Chain 50%
Parts 50%
Spokes 50%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—
Tackle—
Common Wooden .... 70&10@75%
Hartz St. Tackle Blocks ..... 50@50&5%
Hollow Steel Blocks, with Ford's Patent Sheaves ..... 50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron .... 50&10%
Stowell's Self Loading 60%
See also Machines, Hoisting.

Boards, Stove—
Zinc, Crystal, &c ... 30&10@40&10%

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co 33⅓%

Bolts—
Carriage, Machine, &c.—
Common Carriage (cut thread):
⅝ x 6 and smaller .. 75&5@75&10%
Larger and Longer .. 70@70&5%
Phila. Eagle $3.00 list May 21, '99 80%
Bolt Ends, list Feb. 14, '95 .... 70@70&5%
Machine, ⅝ x 4 and smaller 75&5@75&10%
Machine, larger and longer .. 70@70&5%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knob:

Inch	3	4	5	6	8
Per doz	$0.30	.35	.45	.60	.80

Cast Iron Spring Foot, Jap'd:

Inch	6	8	10	
Per doz	$1.00	1.40	1.65	

Cast Iron Chain, Flat, Japanned:

Inch	6	8	10
Per doz	$1.00	1.40	1.65

Cast Iron Flat Shutter, Jap'd., Brass Knobs:

Inch	6	8	10
Per doz	$0.75	.95	1.25

Wrt Barrel Japd ..... 80@80&10%
Wrt " Bronzed .... 50@50&10%
Wrt. Spring ... 70&10@70&10&10%
Wrt. Shutter ..... 50&5@50&10&5%
Wrt. Square Neck ..... 75@75&10%
Wrt Square 66⅔ & 10@66⅔ & 10&10%
Ives' Patent Door 60%

Plow and Stove—
Plow ..... 65&10&10@70%
Stove ..... 85@87½%

Tire—
Common ..... 80&10&5%
Norway Iron 80%
American Screw Company:
Norway Phila., list Oct. 16, '84 .. 80%
Eagle Phila., list Oct. 16, '84 .... 82½%
Bay State, list Dec. 28, '99 ..... 80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84 .. 80%
Eagle Phila., list Oct. 16, '84 .... 82½%
Eclipse, list Dec. 28, '99 ..... 80%
Mount Carmel Bolt Co.:
Norway Phila., list Oct. 16, '84 .... 80%
Eagle Phila., list Oct. 16, '84 .... 82½%
Mount Carmel, list Dec. 28, '99 .. 80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99 ..... 80%
Norway Phila., list Oct., '84 ..... 80%
Upson Nut Co.:
Tire Bolts 72½%

Borers, Tap—
Borers Tap, Ring, with Handle:

Inch	1¼	1½	1¾	2
Per doz	$4.80	5.60	6.40	8.00
Inch	2¼			2½
Per doz	$6.65			11.50

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each 25%

Boxes, Mitre—
C. E. Jennings & Co. 30%
Langdon ..... 15&10%
Perfection 40%
Seavey 33⅓%
Stanley R. & L. Co.:
Nos. 240 to 460 ..... 30%
Nos. 50 and 60 ..... 35%

Braces—
Common Ball, American .. $1.25@1.30
Barber's ..... 50&10&10@60&10%
Fray's Genuine Spofford's 60%
Fray's No. 70 to 120, 81 to 123, 207 to 414 ..... 60%
C. E. Jennings & Co. ..... 50&5%
Mayhew's Ratchet 60%
Mayhew's Quick Action Hay Pat. ... 50%
Millers Falls Drill Braces ..... 25&10%
P., S. & W. Co., Peck's Pat. 60@60&5%
Stanley R. & L. Co.:
Stanley 35%
Victor 45%

Brackets—
Wrought Steel ... 80&10@80&10&5%
Griffin's Pressed Steel ..... 80@80&10%
Griffin's Folding Brackets ..... 70&10%
Stowell's Cast Shelf 75%
Stowell's Sink 50%
Western, W. G. Co., Wire ..... 60&10%

Bright Wire Goods—
See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co. ..... 75&20%
Western, W. G. Co. 80%
Wire Goods Co. ..... 75@75&10%

Buckets, Galvanized—
Price per dozen.

	Quart	12	14
Water, Regular	1.40	1.70	1.90
Water, Heavy	3.40	3.70	3.80
Fire, Rd. Bottom	2.30	2.55	2.95
Well	2.55	2.87	3.15

Bucks, Saw—
Hoosier ..... ℔ gro. $36.00

Bull Rings—
See *Rings, Bull*

Butts—
Brass—
Wrought, list Sept., '96 .... 20&5%
Cast Brass, Tiebout's 50%

Cast Iron—
Fast Joint, Broad .... 40&10@50%
Fast Joint, Narrow ... 40&10@50%
Loose Joint ..... 70&10@75%
Loose Pin ..... 70&10@75%
Mayer's Hinges ..... 70@70&5%
Parliament Butts ..... 70@70&5%

Wrought Steel—
Table and Back Flaps ... 75%
Narrow and Broad 75%
Inside Blind 75%
Loose Pin 75%
Loose Pin, Jap'd ..... 70&10%
Loose Pin, Ball and Steeple Tip 85%
Japanned Ball Tip Butts ... 70&10%
Bronzed, Wrt., Nar. and Inside Blind Butts .... 65&10%

Cages, Bird—
Hendryx Brass:
3000, 5000, 1100 series 5%
1200 series 33⅓%
200, 300, 600 and 900 series ..... 40&10%

Hendryx Bronze:
700 800 series.....40&10%
Hendryx Enameled.....40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong.....per lb. 4¢@4¼¢
Sharp, 1 prong...per lb., 4½@4¾¢
Gamlet, Blunt.....4@4¼¢
Gamlet, Sharp.....4½@4¾¢
Perkins', Blunt Toe.....₰ lb 3.65¢
Perkins', Sharp Toe.....₰ lb 4.15¢

Can Openers—

See *Openers, Can.*

Cans, Milk—

	5	8	10 gal.
Illinois Pattern.....	$1.35	1.85	2.05 each.
New York Pattern..	1.50	2.20	2.45 each.
Baltimore Pattern..	1.50	2.20	2.45 each.
Dubuque	1.35	1.60	1.75 each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$18.00	60.00	129.60 gro., net.

Caps, Percussion—

Eley's E. B.....52@55¢
G. D.....per M 34@35¢
F. L.....per M 40@42¢
G. E.....per M 48@50¢
Musket .....per M 62@63¢

Primers—

Berdan Primers, $2 per M...20%
B. L. Caps (Sturtevant Shells) $2 per M.....20%
All other primers per M.$1.52@1.60

Cartridges—

Blank Cartridges:
32 C. F., $5.50.....10&5%
38 C. F., $7.00.....10&5%
22 cal. Rim, $1.50.....10&5%
32 cal. Rim, $2.75.....10&5%
B. B. Caps, Con. Ball, Swgd. $1.90
B. B. Caps, Round Ball....$1.49
Central Fire.....25%
Target and Sporting Rifle..15&5%
Primed Shells and Bullets.15&10%
Rim Fire, Sporting.....50%
Rim Fire, Military.....15&5%

Casters—

Bed .....70@70&10%
Plate .....60&10@60&10&5%
Philadelphia .....75@75&10%
Acme, Ball Bearing.....33⅓%
Boss .....70&10%
Boss Anti-Friction.....70&10%
Gem (Roller Bearing).....80%
Martin's Patent (Phoenix).....45%
Standard Ball Bearing.....45%
Tucker's Patent low list.....30%
Yale (Double Wheel) low list.....50%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Coil—

American Coil, Straight Link: See Trade Report.
German Coil.....60&10&10@70%

Halter—

Halter Chains...60&10@60&10&10%
German Pattern Halter Chains, list July 24, '97.....60&10&10%
Covert Mfg. Co.
Halter .....35&5%
Covert's Saddlery Works
Halter 70%

Cow Ties—

See *Halters and Ties.*

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6½—6-3, Str'ght, with ring..$23.50
6½—6-2, Str'ght, with ring..$24.50
6½—8-2, Str'ght, with ring..$28.00
6½—10-2, Str'ght, with ring.$32.00
NOTE.—Add 2c per pair for Hooks. Twist Traces 2c per pair higher than Straight Link.
Trace, Wagon and Fancy Chains .....60&5@60&10&5%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron .....60&10&5@70%
Brass .....60&10@60&10&10%
Safety Chain.....75@75&10%
Gal. Pump Chain.....lb. 5@5¼%
Covert Mfg. Co.:
Breast .....35&5%
Heel .....35&5%
Rein .....35&5%
Stallion .....35&5%
Covert Sad. Works:
Breast 70%
Hold Back.....70%
Rein 70%
Oneida Community:
Am. Dog Leads and Kennel Chains, 40@40&5%
Niagara Dog Leads and Kennel Chains .....45@60&5%
Wire Goods Co.:
Dog Chain.....70&10%
Universal Dbl. Jointed Chain.....50%

Chain and Ribbon, Sash—

Oneida Community:
Copper Chain.....60&5%
Steel Chain.....60%
Pullman:
Bronze Chain.....60%
Steel Chain.....60&10%
Sash Chain Attachments, per set..8¢
Aluminoy Sash Ribbon, per 100 ft.....$1.25@3.00
Sash Ribbon Attachments, per set..8¢

Chalk—(From Jobbers.)

Carpenters' Blue.....gro. 38@40¢
Carpenters' Red.....gro. 33@35¢
Carpenters' White....gro. 28@30¢
See also Crayons.

Checks, Door—

Bardsley's 45%
Eclipse .....60&10%
Pullman, per gro.....$54.00
Russwin 40%

Chests, Tool—

American Tool Chest Co.:
Boy's Chests, with Tools.....55%
Youths' Chests, with Tools.....40%
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters', etc., Chests, with Tools.....20%
Machinists' and Pipe Fitters' Chests, Empty.....50%
Tool Cabinets.....50%
C. E. Jennings & Co.'s Machinists' Tool Chests.....33⅓&10%

Chisels—

Socket Framing and Firmer
Standard List.....75@75&10%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Socket Firmer No. 10.....60%
C. E. Jennings & Co. Socket Framing No. 15.....60%
Ohio Tool Co.'s.....70%
Swan's 75%
L. & I. J. White.....30@30&5%

Tanged—
Tanged Firmers..33 1-3@33 1-3&10%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Nos. 191, 181..25%
L. & I. J. White, Tanged.....25&5%

Cold— *lb.*
Cold Chisels, good quality..13@15¢
Cold Chisels, fair quality..11@12¢
Cold Chisels, ordinary... 9@10¢

Chucks—

Beach Pat., each $8.00.....35&5%
Empire 25%
Blacksmiths' 25%
Jacobs' Drill Chucks.....35%
Pratt's Positive Drive.....25%
Skinner Patent Chucks:
Independent Lathe Chucks.....50%
Universal 50%
Combination 50%
Drill Chucks, New Model.....30%
Drill Chucks, Standard.....45%
Drill Chuck, Skinner Pat., all sizes.35%
Drill Chucks, Positive Drive.....30%
Planer Chucks.....25%
Face Plate Jaws.....40%
Standard Tool Co.:
Improved Drill Chuck.....45%
Union Mfg. Co.:
Combination 50%
Czar Drill.....35%
Combination Geared Scroll.....40%
Geared Scroll.....40%
Independent 50%
Independent Steel.....40%
Union Drill.....45%
Universal 50%
Independent Iron F. Plate Jaws.40%
Independent Steel F. Plate Jaws.40%
Westcott Patent Chucks:
Lathe Chucks.....50%
Little Giant Auxiliary Drill.....50%
Little Giant Double Grip Drill..50%
Little Giant Drill, Improved.....50%
Oneida Drill.....50%
Scroll Combination Lathe.....50%

Clamps—

Adjustable, Hammers'.....20@20&5%
Cabinet, Sargent's.....50&10%
Carriage Makers', P., S. & W. Co. .....40&10@50%
Carriage Makers', Sargent's.....60%
Besly, Parallel.....33⅓&10%
Lineman's, Utica Drop Forge & Tool Co. 40%
Saw Clamps, see Vises, Saw Filers'.
Wood Workers, Hammers'.....40&10%

Cleaners, Drain—

Iwan's Champion, Adjustable.....55%
Iwan's Champion, Stationary.....45%

Sidewalk—

Star Socket, All Steel..₰ doz. $4.05 net
Star Shank, All Steel..₰ doz. $3.24 net
W. & C. Shank, All Steel, ₰ doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—

Foster Bros.....30%
New Haven Edge Tool Co.'s.....45%
Fayette R. Plumb.....33⅓@33⅓&10%
L. & I. J. White.....30%

Clippers—

Chicago Flexible Shaft Company:
'98 Chicago Horse.....$8.75 } 15%
1902 Chicago Horse.....10.75 }
20th Century Horse, each, $5.00...20%
Lightning Belt.....$15.00 }
Chicago Belt.....$20.00 } 15%
Stewart's Patent Sheep, $12.75....20%

Clips, Axle—

Eagle, 5-16 and ⅜ in..75@75&10%
Norway, 5-16 and ⅜ in..60&10@70%

Cloth and Netting, Wire

—See *Wire, &c.*

Cocks, Brass—

Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks.....75@75&5%

Coffee Mills—

See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list.....40%
Leather, Walter B. Stevens & Son's list 40%

Combs, Curry—

Metal Stamping Co.....40%

Mane and Tail—

Covert's Saddlery Works.....60&10%

Compasses, Dividers, &c.

Ordinary Goods.....75&5@75&10%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Double.....65%
Calipers, Inside or Outside.....65%
Calipers, Wing.....60%
Compasses 50%

Conductor Pipe,—

L. C. L. to Dealers:
Galvanized.

Territory.	*Nested.*	*Not nested.*
Eastern	*.....70&15%*	*70&10%*
Central	*....70&7½%*	*70&2½%*
Southern	*...70&8½%*	*60&20%*
So. Western	*..60&30%*	*60&10%*
Copper.		*1¼&16 oz.*
Eastern		*.....50&10%*
Central		*.....50&7½%*
Southern		*.....50&5%*
So. Western		*.....50&2½%*

Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

Gal, each..	2	3	4	6	8
Labrador ...	$1.20	$1.50	$1.80	$2.10	$2.70
Gal.....	3	4		6	8
Iceland, ea..	$1.80	$2.10	$2.40		$3.00
Gal.....	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled.....25%
Agate Lined.....25%

Coopers' Tools—

See *Tools, Coopers'.*

Coppers' Soldering—

Soldering Coppers, 3 lbs. to pair and heavier, 20½@21½¢; lighter than 3 lbs. to pair.22½@23½¢

Cord— Sash—

Braided, Drab.....lb. 35¢
Braided, White, Com., Nos. 6 to 12.....lb .23@24½¢
Cable Laid Italian..... lb., A, 18¢; B. 16¢
Common India.....lb. 10@10½¢
Cotton Sash Cord, Tw'ted..17@19¢
Patent Russia.....lb...@14¢
Cable Laid Russia....lb...@15¢
India Hemp, Braided..lb...@18¢
India Hemp, Twisted..lb. 12@13¢
Patent India, Twisted..lb. 12@13¢
Anniston Cordage Co.: Braided Cotton, Old Glory, Nos. 7 to 12....₰ lb 29¢
Anniston, Nos. 8 to 12, 23¢; No. 7, 23½¢; No. 6, 24½¢; Anniston Drab, Nos. 7 to 12, ₰ lb, 26¢; Anniston Mahogany, 27¢.
Pearl Braided, cotton, No. 6, ₰ lb, 24½¢; No. 7, 23½¢; Nos. 8 to 12, 23¢
Eddystone Braided, Nos. 8, 9 and 10, 25¢; 7, 25½¢; 6, 26½¢.
Harmony Cable Laid Italian, Nos. 7 to 10.....₰ lb 23 ¢
Peerless:
Cable Laid Italian.....16 ¢
Cable Laid Russian.....14 ¢
Cable Laid India.....12 ¢
Braided India.....18 ¢
Pullman:
Wire Sash Cord.....10%
Sash Cord Attachments, per doz.10¢
Samson, Nos. 8 to 12:
Braided, Drab Cotton.....₰ lb 40 ¢
Braided, Italian Hamp....₰ lb 40 ¢
Braided, Linen.....₰ lb 55 ¢
Braided, White Cotton or Spot.... ₰ lb 35 ¢
Massachusetts, White.....₰ lb 28 ¢
Massachusetts, Drab.....₰ lb 32 ¢
Phoenix, White, Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Silver Lake:
A quality, Drab.....40 ¢
A quality, White.....35 ¢
B quality, Drab.....35 ¢
B quality, White.....30 ¢
Italian Hemp.....40 ¢
Linen .....57½ ¢
See also Chain and Ribbon.

Wire, Picture—

List Oct., '00.....
85&10&10@85&10&10&5%
Hendryx Standard Wire Picture Cord, 85&10&5%

Cradles—

Grain .....40&12½%

Crayons—

White Round Crayons, gr. 6@6½¢
Cases, 100 gro., $5.00 at factory.
D. M. Steward Mfg. Co.: (Case lots, 20%)
Jumbo Crayons.....gr. $3.50
Metal Workers' Crayons, gr. $2.50
Soapstone Pencils, round, flat or square.....gr. $1.50
Rolling Mill Crayons.....gr. $2.50
Railroad Crayons (composition) gr. $2.00
Zelnicker's Lumber:
Red, Blue, Green.....₰ gro. $6.50
Black .....₰ gro. $4.00
See also Chalk.

Crooks, Shepherds'—

Fort Madison, Heavy.....₰ doz. $7.00
Fort Madison, Light.....₰ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden.....50%

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847..₰ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor .....₰ doz. $3.00
Wm. Rogers & Son.....₰ doz. $2.50

Cutters— Glass—

H. H. Mayhew Co.....40%
Red Devil.....50%
Smith & Hemenway Co.....50%
Woodward 40%

Meat and Food—

American 30%

Nos.	1	2	3	4	B	5
Each.....	$5	$7	$10	$25	$50	$60

Enterprise .....25@25&7½%

Nos.	5	10	12	22	32
Each.....	$2	$3	$2.75	$4.50	$6

Dixon's .....₰ doz. 40@50%

Nos.....	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal .....40&10@50%
Little Giant.....₰ doz. 40@50%

Nos....	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$88.00

N. E. Food Choppers.....25%
New Triumph No. 605, ₰ doz. $24.00.....40@50%
Ruswin Food, No. 1, $21.00; No. 2, $27.00 .....45&10&10%
Woodruff's .....₰ doz. 40@50%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers.....25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c.....40%
Kraut Cutters, 24 x 7, 26 x 8, 30 x 9.....55%
Kraut Cutters, 36 x 12, 40 x 12....40%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....₰ doz. $3.00
Combined Slaw Cutter and Corn Grater .....₰ doz. $4.00
Tucker & Dorsey Mfg. Co.:
Kraut Cutters.....40%
Slaw Cutters, 1 Knife..₰ gr. $18@$20
Slaw Cutters, 2 Knife..₰ gr. $22@$30

Tobacco—

All Iron, Cheap..doz. $4.25@$4.50
Enterprise .....25@30%
National, ₰ doz., No. 1, $21; No. 2, $18 .....40%
Sargent's, ₰ doz., No. 2.....60%
Sargent's, Nos. 12 and 21.....60&10%

Washer—

Appleton's, ₰ doz., $16.00....50&10&10%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger..per doz., $9.00
Iwan's Imp'ved Post Hole Auger.40&5%
Iwan's Vaughan Pattern Post Hole Augers .....₰ doz. $6.25
Iwan's Perfection Post Hole Digger.. ₰ doz. $8.25
Iwan's Split Handle Post Hole Diggers .....₰ doz. $7.25
Kohler's Universal.....₰ doz. $14.00
Kohler's Little Giant.....₰ doz. $12.00
Kohler's Hercules.....₰ doz. $10.00
Kohler's Invincible.....₰ doz. $9.00
Kohler's Rival.....₰ doz. $8.00
Kohler's Pioneer.....₰ doz. $7.00
Never-Break Post Hole Diggers, ₰ doz., $24.00.....60%
Samson, ₰ doz. $34.00.....25%

Dividers—See *Compasses.*

Doors, Screen—

Phillips', style E, ⅞ in....₰ doz. $10.00
Phillips', style 077, ⅞ in....₰ doz. $7.50
Phillips', style x-y, ⅞ in....₰ doz. $10.50

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, ₰ doz., $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—

See *Knives, Drawing.*

Dressers, Emery Wheel—

Diamond Emery Wheel Dressers....35%
Diamond Wheel Dresser Cutters....35%

Drills and Drill Stocks—

Common Blacksmiths' Drill, each .....$1.50@$1.75
Breast, Millers Falls.....15&10%
Breast, P., S. & W.....40%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills, Nos. 2 and 3.....16⅔%
Johnson's Drill Points.....16⅔%
Millers Falls Automatic Drills.33⅓&10%
Ratchet, Curtis & Curtis.....25%
Ratchet, Parker's.....40%
Ratchet, Weston's.....40%
Ratchet, Weston's, Style H Improved 40%
Ratchet, No. 012.....40%
Ratchet, Whitney's, P., S. & W..50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00.....33⅓%

Twist Drills—

Bit Stock.....60&10&10@70%
Taper and Straight Shank.... 60&10@60&10&5%

Drivers, Screw—

Screw D'ver Bits, per doz..45@60¢
Balsey's Screw Holder and Driver, ₰ doz., 2½-in., $6; 4-in., $7.50; 6-in., ₰ 50%
Buck Bros.' Screw Driver Bits.....30%
Champion 50%
Edson 60%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Gay's Double Action Ratchet.....35%
Goodell's Auto..50&10&10@50&10&10&5%
Hurwood 40%
Mayhew's Black Handle.....40%
Mayhew's Monarch.....40&10%
Millers Falls, Nos. 20 and 21...25&10%
Millers Falls, Nos. 11, 12, 41, 42..15&10%
New England Specialty Co.....50&10%
Sargent & Co.'s:
Nos. 1 and 60.....50&10&10%
Nos. 50, 53 and 55.....60&10%
Nos. 20 and 40.....70&10%
Smith & Hemenway Co.....40&5%
H. D. Smith & Co.'s Perfect H'dle.40%
Stanley R. & L. Co.'s:
No. 64, Varn. Handles.....65%
No. 86.....75%
Victor 55%
Defiance 70%
Swan's:
Nos. 7565 to 7568.....50%
No. 7549.....40&10%

Eave Trough, Galvanized—

Territory.	*L. C. L.*
Eastern	*.....80&5%*
Central	*.....75&10&10%*
Southern	*.....75&12½%*
So. Western	*.....75&5%*

Terms.—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories:
Galv. Steel and Galv. C. C.
Iron and Steel, Standard Gauge .....60&10%
No. 26.....35%
No. 24.....25%
No. 22.....10%
Copper 37½%
Perfect Elbows (S., S. & Co.).....40%

Emery, Turkish—

4to6 5¼ to 180 Flour

Kegs	*.....lb. 5 ¢*	*5¼¢*	*5¼¢*
½ Kegs	*.....lb. 5¼¢*	*5¾¢*	*5¾¢*
¼ Kegs	*.....lb. 5½¢*	*6 ¢*	*4 ¢*
10-lb. cans, 10 in case....6¼¢		*7 ¢*	*6 ¢*
10-lb. cans, less than 10.....		*10 ¢*	*10 ¢*	*8 ¢*
Less quantity..		*10 ¢*	*10 ¢*	*8 ¢*

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice

—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's .....50&10%
Walling's .....40&10%

Cord and Weight—
Ives 40%

Faucets—
Cork Lined.....50@50&10%
Metallic Key, Leather Lined..60&10@70%
Red Cedar.....40&10@50%
Petroleum.....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key..50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined...50%
John Sommer's Reliable Cork Lined..50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
McKenna, Brass:
Burglar Proof, N. P.....25%
Improved, ¾ and ⅞ inch.....25%
Self Measuring:
Enterprise, ℔ doz. $36.00.....40&10%
Lane's, ℔ doz. $36.00.....40&10%
National Measuring, ℔ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List revised Nov. 1, 1899.
Best Brands.....70&10@75&5%
Standard Brands.75&10@75&10&10%
Lower Grade....75&10&10@80&10%

Imported—
Stubs' Tapers, Stubs' list, July 2½, '97.....33 1-3@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103.....$3.75
Special, No. 104.....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	15	17	19	21
Per doz.	$3.25	3.75	4.25	4.75

P., S. & W. Co.....30&10@40%
Reading Hardware Co.....60%
Sargent's 70%
Stowell's Giant Grindstone Hanger..℔ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy .....50&10&10%
Stowell's Grindstone Fixtures, Light..60&10%

Fodder Squeezers—
See *Compressors.*

Forks—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....66⅔%
Victor, Header.....65%
Champion, Hay.....66⅔%
Champion, Header.....65%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley.....40%
Plated.—See Spoons.

Frames— Saw—
White, S'g't Bar, per doz..75@80¢
Red, S'g't Bar, per doz...$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.	1	2	3	4	6
Each	$1.30	$1.60	$1.90	$2.20	$2.80

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped.. 3.65
Waterproof Dbl. Taped.. 4.40
Waterproof Tpl. Taped.. 5.15
} 10¢ 12½¢

Gates, Molasses and Oil—
Stebbins' Pattern.80&10@80&10&5%

Gauges—
Marking, Mortise, &c...50&10@60%
Chapin-Stephens Co.:
Marking, Mortise, &c.50&10@50&10&10%
Scholl's Patent.....50&10@60&10&10%
Door Hangers.....50@50&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....30%
Marking and Mortise.....60%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....60@60&10&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush..25@50%
Cans (½ pts., pts., qts., ½ gal., gal.) .....25@48%
International Glue Co. (Martin's)..40%

Grease, Axle—
Common Grade....*gro.* $4.50@6.00
Dixon's Everlasting..10-lb pails, ea. 85¢
Dixon's Everlasting, in boxes, ℔ doz. 1 lb, $1.20; 2 lb, $2.00
Helmet Hard Oil.....25%

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—
Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, ℔ doz.....$2.00 } 33⅓%
Pike Mower and Tool Grinder, each .....$6.00 }
Velox Ball Bearing, Mounted, Angle Iron Frames, each.....$3.00

Halters and Ties—
Cow Ties.....60@60&10%
Covert Mfg. Co.:
Web .....35&5%
Jute Rope.....50%
Sisal Rope.....30&10%
Cotton Rope.....45%
Hemp Rope.....45%
Covert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters....70%
Sisal Rope Halters.....60&20%
Jute, Manila and Cotton Rope Ties 70%
Sisal Rope Ties.....60&10%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters..45@50&5%
Niagara Cow Ties....45&5@50&10&5%
E. T. Rugg & Co.:
Leather Halters.....50%
Web Halters and Webbing.....60%
Jute and Sisal Rope Halters.....60%
Jute and Sisal Horse and Cattle Ties 60%
Cotton Horse Ties.....60%
Livery Ties, Braided.....60%

Hammers—
Handled Hammers—
Heller's Machinists'...40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....50%
Peck, Stow & Wilcox, Steel.....50%
Fayette R. Plumb:
Plumb, A. E. Nail..... 33⅓&7½@33⅓&10&7½%
Engineers' and B. S. Hand..... 50&7½&5@50&10&7½&5%
Machinists' Hammers.50&5@50&10&5%
Riveting and Tinners'..... 40&2½@40&10&2½%
Sargent's C. S. New List.....40%

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢..85@85&10%
2 to 5 lb., per lb., 40¢..85@85&10%
Over 5 lb., per lb., 30¢, 85&10@85&10&10%
Wilkinson's Smiths'...lb. 9½@10¢

Handles—
Agricultural Tool Handles
Axe, Pick, &c.....60&5@60&10&5%
Hoe, Rake, &c.....45@50&5%
Fork, Shovel, Spade, &c.:
Long Handles.....45@50&5%
D Handles.....40%

Cross-Cut Saw Handles—
Atkins' 40%
Champion .....45@45&10%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...*gro.* $2.50@3.00
Brad Awl.....*gro.* $1.65@1.75
Chisel Handles:
Apple Tanged Firmer, gro. assorted.....$2.40@2.65
Hickory Tanged Firmer, gro. assorted.....$2.15@2.40
Apple Socket Firmer, gro. assorted.....$1.75@1.95
Hickory Socket Firmer, gro. assorted.....$1.45@1.60
Hickory Socket Framing, gro. assorted.....$1.60@1.75
File, assorted.....*gro.* $1.30@1.40
Hammer, Hatchet, Axe, &c. 60&10@60&10&10%
Hand Saw, Varnished, doz. 80&85¢; *Not Varnished*...65@75¢
Plane Handles:
Jack, doz. 30¢; *Jack, Bolted*.75¢
Fore, doz. 45¢; *Fore, Bolted*.90¢
Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel .....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.....℔ gro. $0.85@$1.50

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c
Allith Mfg. Co.:
Reliable, No. 1.....per doz. $8.00
Reliable, No. 2.....per doz. $9.00
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00.....70%
Roller Bearing, No. 11, $15.00.70%
Roller Bearing, Ex. Hy., No. 22, $18.00.....70%
Hinged Hangers, $16.00....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing.....$4.00
Parlor, Standard.....$3.15
Parlor, No. 105.....$2.85
Parlor, New Model.....$2.80
Parlor, New Champion.....$2.25
Barn Door, Standard.....60&5%
Hinged.....net $6.40
Covered .....60&2%
Special .....70&5%
Lawrence Bros.:
Advance .....60&10%
Cleveland 75%
Clipper, No. 75.....60%
Crown .....60&10%
Easy Parlor Door, Dbl. Sets, $2.50; Single Sets, $1.25.
Giant .....60&5%
Hummer .....70&5%
New York.....60&10%
Peerless 75%
Sterling .....60&10%
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers.....60&5%
Richards Mfg. Co.:
Pioneer Wood Track No. 3..$2.00
Ball B'r'g St'l Track No. 10,50&10%
Roller B'r'g St'l Track No. 12,$2.15
Roller B'r'g St'l Track No. 13,$2.30
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&10%
Trolley B. D. No. 17.....$1.25
Trolley F. D. No. 120.....$2.10
Trolley F. D. No. 121.....$2.25
Trolley F. D. No. 150.....$2.35
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 44..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&10%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.00
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24.....$1.30
Trolley B. D. No. 27.....$1.40
Trolley B. D. No. 28.....$1.60
Roller Bearings Nos. 39, 41, 43 .....75%
Anti-friction No. 42.....60&20%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Safety Door Hanger Co.:
Storm King Safety.....60%
U. S. Standard Hinge.....60%
Stowell Mfg. & Foundry Co.:
Acme Parlor Ball Bearing....40%
Ajax Hinge Door.....60%
Apex Parlor Door.....50&10&5%
Atlas 60%
Baggage Car Door.....50%
Climax Anti-Friction.....50&10%
Elevator 40%
Express 60%
Freight Car Door.....60%
Interstate .....60&10%
Lundy Parlor Door.....50&10%
Magic 60%
Matchless .....60&10%
Nansen .....70&5%
Parlor Door.....50&10%
Railroad .....50&10%
Rex Hinge Door.....60%
Street Car Door.....50%
Steel, Nos. 300, 404, 500....50&10%
Underwriters' Fire Door.....40%
Wild West Warehouse Door..50%
Zenith for Wood Track....50&10%
A. L. Sweet Iron Works:
Check Back.....70%
Climax Anti-Friction.....50&10%
Eagle 70%
Hylo Hinge.....60%
New Perfection.....60%
Pilot 60%
Pilot Hinge.....60%
Rider Wooster.....65%
Western Pattern.....70%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing..℔ doz. $5.00
C. J. Roller Bearing.....60&10%
Cycle Ball Bearing.....50%
Dwarf Ball Bearing.....40%
Ives, Wood Track.....60&10%
L. T. Roller Bearing....60&10&5%
New Era Roller Bearing..50&10%
O. K. Roller Bearing..60&10&5%
Prindle, Wood Track.....60%
Richards' Wood Track.....60%
Richards' Steel Track.....50&10%
Spencer Roller Bearing....60&10%
Tandem, Nos. 1 and 2.....60%
Underwriters' Roller Bearing..40%
Velvet 50%
Wilcox Auditorium Ball B'r'g.20%
Wilcox Barn Trolley No. 123..40%
Wilcox Elv. Door, Nos. 112 and 122½.....50%
Wilcox Elv. Door, No. 132....40%
Wilcox Fire Trolley, Roller Bearing.....30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century..50&10&10%
Wilcox O. K. Steel Track....50%
Wilcox O. K. Trolley.....50%
Wilcox Trolley Ball Bearing..40%
Wilcox Wideman Narrow Gauge, Ball Bearing.....40%
For Track, see Rail.

Hangers— Garment—
Pullman Trouser, ℔ gro., 1 pair Flat Aluminoy, $9.00; 1 pair Round Nickeled, $9.00; 4 pair Round Nickeled.. $27.00
Victor Folding.....℔ gro. $9.60
Western, W. G. Co.....70&10%

Extra 5&10% often given.

Gate—
Myers' Patent Gate Hangers, ℔ doz. net $4.80

Joist and Timber—
Lane Bros. Co.....30%

Hasps—
Griffin's Security Hasp.....50%
McKinney's Perfect Hasp, ℔ doz.....50%

Hatchets—
Regular list, first quality.....50%
Second quality $1.00 per doz. less than first quality.

Heaters, Carriage—
Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 3E, $3.25; No. 1, $3.50.....10%
Clark Coal, ℔ doz. $0.75.....10%

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	1	3	5
Doz. pair	$0.75	1.35	2.70

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	1	1½	2	2½
Doz. pair	$0.70	.65	.60	.55

Mortise Reversible Shutter (Buffalo, &c.):

No.	1	1½	2
Doz. pair	$0.70	.65	.60

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.:
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Sargent's, Nos. 1, 3, 11 and 13..75&10%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.90; with screws, $1.20.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&10&5%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
1868, Old Pat'n, Nos. 1, 3 & 5.... 75&10&5%
Tip Pat'n, Nos. 1, 3 & 5...75&10&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75.75%
Steamboat Gravity Locking, No. 10.75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 105.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	1	2	3
Hinges with L't'chs.	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	.35

New England:
With Latch.....*doz.* ...@$2.00
Without Latch...*doz.* ...@$1.60
Reversible Self-Closing:
With Latch.....*doz.* ...@$1.75
Without Latch...*doz.* ...@$1.35
Western:
With Latch.....*doz.* $1.75
Without Latch.....*doz.* $1.75
Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets,

Nos.	1	2	3
Hinges with Latches	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	1.35

Pivot Hinges—
Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—
Holdback, Cast Iron.....$6.50
Non-Holdback, Cast Iron.....$6.25
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....45%
Bardsley's Patent Checking..15%
Bommer Bros.:
Bommer Ball Bearing Floor Hinges 40%
Bommer Spring Hinges.....40%
No. 990 Wrot. Steel Hold Back, ℔ gr. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor Hinge 50%
Garden City Engine House....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, No. 14.....℔ gr. $9.00
Columbia, No. 18.....℔ gr. $25.00
Columbia, Adjustable, No. 7, ℔ gr. $12.00
Gem, new list.....30%
Clover Leaf.....℔ gr. $12.00
Oxford, new list.....30%
Lawson Mfg. Co. Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....℔ gr. $9.00
Ball Bearing Floor Hinge....50%
Ohio Detachable Screen Door Hinge .....℔ gr. $12.00
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr. $12.50
Ideal, No. 4.....℔ gr. $9.00
New Idea No. 1.....℔ gr. $9.00
New Idea, Double Acting....45%
New Idea Floor.....45%
Van Wagoner:
Ball Bearing.....25%
No. 777 Sh't Steel Holdb'k..℔ gro. nr. $

Many discounts given on most of these lines.

Wrought Iron Hinges—
Strap and T Hinges, &c., list December 20, 1904:
Light Strap Hinges...70%
Hvy Strap H'g's...75&5%
Light T Hinges.....65%
Heavy T Hinges.....60%
Extra H'y T H'g's.70&10%
Hinge Hasps.....50%
Cor. Heavy Strap...75&5%
Cor. Ex. Heavy T.70&10%
Extra 10@10&5%
Screw Hook and Strap. { *6 to 12 in..lb. 3½¢* / *1½ to 20 in..lb. 3¼¢* / *22 to 36 in..lb. 3 ¢*
Screw Hook and Eye:
¾ to 1 inch.....lb. 6 ¢
¾ inch.....lb. 7 ¢
½ inch.....lb. 9 ¢

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers....35%

Hods— Coal—

	Per doz.			
Inch	*15*	*16*	*17*	*18*
Galv. Open	*$2.50*	*2.75*	*3.00*	*3.25*
Jap. Open	*$1.90*	*2.10*	*2.25*	*2.55*
Galv. Funnel	*$3.00*	*3.30*	*3.60*	*3.90*
Jap. Funnel	*$2.45*	*2.65*	*2.85*	*3.30*

Masons' Etc.—
Avery-Caldwell Mfg. Co.:
Steel Brick.....each $1.00
Steel Mortar.....each $1.25
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $0.95
Steel Mortar, No. 158.....each $1.25

Hoes— Eye—
Scovil and Oval Pattern.....
60&10@60&10&10%
Grub, list Feb. 23, 1899.....
70&10@75&10%
D. & H. Scovil.....33⅓%

Handled—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Cronk's Weeding No. 1, $2.00; No. 2, $2.25
Ft. Madison Cotton Hoe....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ℔ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....℔ doz. 66⅔%
Junior Size.....℔ doz. $4.00
Ft. Madison Sprouting Hoe...℔ doz. 50%
Ft. Madison Dixie Tobacco Hoe.....
75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
B. B. 6 in., Cultivator Hoe.....$3.15
B. B. 6½ in.....$3.35
Acme Wedding.....℔ doz., net, $4.35
W. & C. L'ning Shuffle Hoe, ℔ doz. $4.85

Hoisting Apparatus—
See *Machines, Hoisting.*

Holders— Bit—
Angular, ℔ doz. $24.00.....45&10%

Door—
Bardsley's.....45%
Empire.....50%
Pullman.....60%

File and Tool—
Nicholson File Holders and File Handles.....33⅓&40%

Fruit Jar—
Triumph Fruit Jar Holder, ℔ gross, $10.80; ℔ doz.....$1.25

Hones—Razor—
Pike Mfg. Co., Belgian, German and Swaty.....50%

Hooks—Cast Iron—
Bird Cage, Reading.....40%
Bird Cage, Sargent's List.....60&10%
Ceiling, Sargent's List, Nos. 29, 32, 33, 129, 132, 133 and 135.....50&10&10%
Clothes Line, Reading List.....40%
Clothes Line, Sargent's List.50&20&10%
Coat and Hat, Sargent's List...50&10%
Clothes Line, Stowell's.....70%
Coat and Hat, Reading.....45&20%
Coat and Hat, Stowell's.....70%
Coat and Hat, Wrightsville.....65%
Harness, Reading List.....40%
Harness, Stowell's.....60%
School House, Stowell's.....70%

Wire—
Belt.....80&10@..%
Wire C. & H. Hooks:.....
75&10@75&10&10%
Columbian Hdw Co., Gem.....70&10%
Parker Wire Goods Co., King..75&10%
Van Wagoner, Coat and Hat.....70%
Western W. G. Co. Molding.....75%
Wire Goods Co.:
Acme.....60&10%
Chief.....70%
Crown.....75%
Czar.....65%
V Brace.....75%
Czar Harness.....50&10%

Wrought Iron—
Box, 6 in., per doz., $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton.....doz. $1.05@$1.25
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—
Hooks, Bench, see *Stops, Bench.*
Rush, Light, doz. $4.75; Medium, $5.35; Heavy, $6.25
Grass, best, all sizes, per doz. $1.50
Grass, common grades, all sizes, per doz.....$1.30
Whiffletree.....lb. 5¾@6¢
Hooks and Eyes:
Brass.....60&10&5@60&10&10%
Malleable Iron..70&10@70&10&10%
Covert Mfg. Co. Gate and Scuttle Hooks.....35%
Covert Saddlery Works' Self Locking Gate and Door Hook.....60%
Ft. Madison Cut-Easy Corn Hooks, ℔ doz. $3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—
See *Nails, Horse.*

Horseshoes—
See *Shoes, Horses.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition.....ft. 5 @ 6 ¢
3-ply Standard.....ft. 8 @ 9 ¢
4-ply Standard.....ft. 10 @11 ¢
3-ply extra.....ft. 11 @13 ¢
4-ply extra.....ft. 14 @16 ¢
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 8 @ 9 ¢
Fair Quality.....ft. 10 @11 ¢

Irons— Sad—
From 4 to 10.....lb. 2¾@3 ¢
B. B. Sad Irons.....lb. 3¼@3½¢
Chinese Laundry....lb. 4¾@5 ¢
Chinese Sad.....lb. 4 @4¼¢
Mrs. Potts', cents per set:

Nos.	*50*	*55*	*60*	*65*
Jap'd Tops	*62*	*59*	*72*	*69*
Tin'd Tops	*65*	*62*	*75*	*72*

New England Pressing..lb. 3¾@4¢

Pinking—
Pinking Irons.....doz. 50@60¢

Irons, Soldering
See *Coppers.*

Jacks, Wagon—
Covert Mfg. Co.:
Auto Screw.....30&2%
Steel.....45%
Covert's Saddlery Works:
Daisy.....60&10%
Victor.....60%
Lockport.....50%
Lane's Steel.....30&10&2%
Richards' Tiger Steel, No. 130..50&10%
Smith & Hemenway Co.'s.....25%

Kettles—
Brass, Spun, Plain.....20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—
Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co.....50%

Corn—
Withington Acme, ℔ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—
Standard List.....75%
C. E. Jennings & Co., Nos. 45, 46..60%
Jennings & Griffin, Nos. 41, 42.....60%
Ohio Tool Co.'s.....70%
Swan's.....75%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—
Serrated Edge..per doz. $5.25@5.50
Iwan's Sickle Edge.....℔ doz. $9.50
Iwan's Serrated.....℔ doz. $10.00

Mincing—
Buffalo.....℔ gro. $13.00

Miscellaneous—
Farriers'.....doz. $3.00@3.25
Wostenholm's.....℔ doz. $3.00@3.25

Knobs—
Base, 2¼-inch, Birch, or Maple, Rubber tip.....gro. $1.15@1.20
Carriage, Jap., all sizes.....
gro. 40@45¢
Door, Mineral.....doz. 65@70¢
Door, Por. Jap'd.....doz. 70@75¢
Door, Por. Nickel..doz. $2.05@2.15
Bardsley's Wood Door, Shutters, &c..15%
Picture, Sargent's.....60&10&10%

Lacing, Leather—
See *Belting, Leather—*

Ladders, Store, &c.—
Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—
L. & G. Mfg. Co. (low list).....25%
P. S. & W.....50%
Reading.....60%
Sargent's.....50&10%

Lanterns—Tubular—
Regular Tubular, No. 0.....
doz. $4.25@4.85
Lift Tubular, No. 0.....
doz. $4.50@5.15
Hinge Tubular, No. 0.....
doz. $4.50@5.15
Other Styles.....40&10@10&5%

Bull's Eye Police—
No. 1, 2¾-inch.....$2.50@2.75
No. 2, 3-inch.....$2.75@3.00

Lasts and Stands, Shoe—
Stowell's Atlas, Malleable Iron.....50%
Stowell's Badger, Cast Iron.....50%

Latches— Thumb—
Roggin's Latches, with screw..
doz. 35@40¢

Door—
Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.90
Cronk & Carrier Mfg. Co., Latch, Hasp and Staples.....50%
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—
Small.....doz. 50¢; large, 60¢
Covert Mfg. Co., Cotton and Hemp.45%

Lifters, Transom—
R. & E.....33⅓%

Lines—

Wire Clothes, Nos.	*18*	*19*	*20*
100 feet	*$2.20*	*2.00*	*1.70*
75 feet	*$1.80*	*1.70*	*1.50*

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....℔ gr. 22%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%
Anniston Waterproof Clothes, 50 ft. ℔ gro., $24.00; Gilt Edge, $22.00; Air Line, $22.00; Acme, $17.00; Alabama, $15.00; Empire, $14.00; Advance, $13.50; Oriole, $20.00; Albemarle, $13.50; Eclipse, $12.50; Chicago, $11.00; Standard, $10.00; Columbia, $8.50; Allston, $12.50; Calhoun, $11.00.

Locks— Cabinet—
Cabinet Locks...33⅓@33⅓&7½%

Door Locks, Latches, &c.—
NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....40%
Sargent & Co.....40&10%
Stowell's Steel Door Latches.....30%

Elevator—
Stowell's.....5w%

Padlocks—
Wrought Iron....75&10&5@80&6%
R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—
Ives' Patent:
Bronze and Brass.....62½%
Crescent.....50&10%
Iron.....62½%
Window Ventilating.....60%
Robison Patent Ventilating Sash Lock.....40%
Wrought Bronze and Brass.....55%
Wrought Steel.....55%
Pullman Patent Ventilating Lock..25%
Reading.....40%

Machines—Boring—
Com. Upr't, without Augers.$2.00
Com. Ang'l'r, without Augers.$2.25
Swan's Improved.....40&10%
Angular.
Jennings', Nos. 1 and 4.....35&5%
Millers' Falls..... 5.75
Snell's, Rice's Pat. 2.50 2.75

Corking—
Reisinger Invincible Hand Power.....
℔ doz. $18.00

Fence—
Williams' Fence Machines....each, $5.50

Hoisting—
Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.....20%

Ice Cutting—
Chandler's.....12½%

Washing—

Boss Washing Machine Co.:	Per doz.
Boss No. 1	$57.00
Boss Rotary	$54.00
Champion Rotary Banner No. 1	$54.00
Standard Champion No. 1	$48.00
Standard Perfection	$36.00
Cinti Square Western	$30.00
Uneeda American, Round	$30.00

Mallets—
Hickory.....45&5@50%
Lignumvitæ.....45&5@50%
Tinners' Hickory and Apple-wood.....doz. 45&5@50%

Mangers, Stable—
Swett Iron Works.....50%

Mashers, Vegetable—
Western, W. G. Co., Potato....60&10%

Mats, Door—
Elastic Steel (W. G. Co.), new list..
50&10%

Mattocks—
See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—
Enterprise Mfg. Co.....25@30%
National list Jan. 1, 1902.....30%
Parker's Columbia & Victoria.50&10@60%
Parker's Box and Side.....50&10@60%
Swift, Lane Bros. Co.....30%

Mowers, Lawn—
NOTE.—Net prices are generally quoted
Cheapest.....all sizes, $1.85@2.00
Cheap.....all sizes, $2.00@2.50
Better Grade..all sizes, $2.50@4.50

	12	*14*	*16*	*18-in.*
High Grade	*$4.50*	*4.75*	*5.00*	*5.25*

Continental.....60&5%
Great American.....70%
Great American Ball B'r'g, new list.70%
Quaker City.....70%
Pennsylvania.....60&5%
Pennsylvania, Jr., Ball Bearing....60%
Pennsylvania Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%
Granite State:
Style A, Low Wheel....70&10&5%
Style B, Low Wheel.....70&10&5%
Style C, High Wheel.....70&10%
Style D, High Wheel.....70%
Philadelphia:
Styles M., S., C., K., T.....70&5%
Style A., all Steel.....60&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, special list.50%

Nails—
Wire Nails and Brads, Papered, List July 20, 1899..85&10&10@90%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers' &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	...40&5%
Champlain	28	26	25	24	23	.....50%
Coleman	13	12	12	11	11	.....net
New Haven	23	21	20	19	18	...40&5%
Putnam	23	21	20	19	18	....33⅓%
New Putnam	19	18	17	16	16	..10&10%
Western						℔ lb 8½¢

Jobbers' Special Brands.....
per lb. 8½@10¢

Picture—

	1½	*2*	*2½*	*3*	*3½ in.*
Brass H'd	*.45*	*.55*	*.60*	*.70*	*.. gro*
Por. Head	*1.10*	*1.10*	*1.10*		*.. gro*

Nippers—
See *Pliers and Nippers.*

Nuts—
Cold Punched: Off list.
Mfrs. or U. S. Standard.
Square, Blank.....$5.00
Hexagon, Blank.....$5.50
Square, Blank, C. T. & R..$5.20
Hexagon, Blank, C. T. & R. 5.90
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square, Blank.....$6.10
Hexagon, Blank.....$5.90
Square, Tapped.....$5.40
Hexagon, Tapped.....$5.80

Oakum—
Best.....lb. 6¼@6½¢
U. S. Navy.....lb. 5¾@6¢
Navy.....lb. 4½@5¢
Plumbers' Spun Oakum...2½&3¢
In carload lots ⅛¢ lb. off, f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper.....50&10%
Tin or Steel.....65&10&10%
Zinc.....65&10@70%
Chase or Paragon:
Brass and Copper.....50&10%
Tin or Steel.....65&10%
Zinc.....65&10%
Malleable, Hammers' Imp'ed, Nos. 11, 12 and 13.....20%
Malleable, Hammers' Old Pattern, Nos. 1, 2 and 3.....50%
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers— Can—

	Per doz.
Sprague, Iron Handle	*.30@35¢*
Sprague, Wood Handle	*.35@40¢*
Sardine Scissors	*.$1.75@$3.00*
National	.....50&10%
Stowell's Sprague	.....℔ doz. 35@45¢
Vim Tin Shear and Can Opener, ℔ doz. 75c.; per gro., $7.50	

Egg—
Nickel Plate.....℔ doz., $2.00
Silver Plate.....℔ doz., $4.00

Packing—
Asbestos Packing, Wick and Rope.....lb. 14@16¢

Rubber—
(Fair quality goods.)
Sheet, C. I.....8@10¢
Sheet, C. O. S.....9@13¢
Sheet, C. B. S.....10@14¢
Sheet, Pure Gum.....50@65¢
Sheet, Red.....40@50¢
Jenkins' '96, ℔ lb 80¢.....25@25&5%

Miscellaneous—
American Packing...lb. 7@10 ¢
Cotton Packing.....lb. 16@25 ¢
Italian Packing.....lb. 9@12½¢
Jute.....lb. 4@ 4½¢
Russia Packing.....lb. 8@11 ¢

Pails, Creamery—
S. S. & Co., with gauges—No. 1, $6.25; No. 2, $6.50 ℔ doz.

Pails, Water, Well, &c.—
See *Buckets.*

Pans— Dripping—
Standard List.60&10@60&10&10&12½%

Fry—
Common Lipped:

Nos.	*1*	*2*	*3*	*4*	*5*
Per doz	*$0.75*	*0.80*	*0.90*	*1.10*	*1.30*

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz	*$1.95*	*2.25*	*2.80*	*3.15*

Roasting and Baking—
Regal, S., S. & Co., ℔ doz., Nos. 5, $4.50; 10, $5.25; 20, $6.75; 30, $6.25.
Savory ℔ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ℔ gro.:

No. 40	50	60	140	150	160
$30.00	35.90	42.00	34.00	39.00	46.00

Paper—Building Paper
Asbestos: lb.
lb.....6¢
Building Felt, 8, 10 and 12 Mill Board, sheet, 40x40 in., 1-32 to ⅛ in.....10¢
Roll Board, 1-16 in. and under.....6¢
Roll Board, 3-32 and ⅛ in..8¢
33 1-3%
Per roll
Rosin Sized Sheathing, 500 sq. ft. Light weight, 25 lbs. to roll
35@40¢
Medium weight, 30 lbs. to roll,
40@45¢
Heavy weight, 40 lbs. to roll..
56@60¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb. ton.....$38.00@40.00
Red Rope Roofing, 250 sq. ft. per roll.....$1.75

Tarred Paper—
1 ply (roll 300 sq. ft.), ton....
$32.50@35.50
2 ply, roll 108 sq. ft.....55@60¢
3 ply, roll 108 sq. ft.....78@85¢

Slater's Felt (roll 500 sq. ft.) .75¢
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.) $2.75

Sand and Emery—

Flint Paper and Cloth 60@60&10%
Garnet Paper and Cloth 25%
Emery Paper and Cl'h. 50&10@60%

Parers— Apple—

Advance ..... ℔ doz. $4.00
Baldwin ..... ℔ doz. $4.00
Bonanza Improved ..... each $6.50
Daisy ..... ℔ doz. $4.00
Dandy ..... each $7.50
Eureka Improved ..... each $20.00
Family Bay State ..... ℔ doz. $15.00
Improved Bay State ..... ℔ doz. $36.00
Little Star ..... ℔ doz. $5.00
New Lightning ..... ℔ doz. $7.00
Reading 72 ..... ℔ doz. $3.25
Reading 78 ..... ℔ doz. $6.25
Rocking Table ..... ℔ doz. $6.20
Turn Table '98 ..... ℔ doz. $6.00
White Mountain ..... ℔ doz. $5.00

Potato—

Saratoga ..... ℔ doz. $7.00
White Mountain ..... ℔ doz. $6.00

Picks and Mattocks—

List Feb. 23, 1899 ..... 75@75&5%
Cronk's Handled Garden Mattock, ℔ doz., $6.40 ..... 33⅓%

Pinking Irons—

See *Irons, Pinking.*

Pins, Escutcheon—

Brass ..... 60@60&10%
Iron, list Nov. 11, '85 .. 60@60&10%

Pipe, Cast Iron Soil—

Carload lots.

Standard, 2-6 in. 60%
Extra Heavy, 2-5 in. 70%
Fittings 75%

Pipe, Merchant—

Consumers, Carloads.

	Steel.		*Iron.*	
	Blk.	*Galv.*	*Blk.*	*Galv.*
⅛ & ¼ *in.*	71%	55%	68½%	52½%
⅜ & ½ *in.*	75%	63%	72½%	60½%
¾ *to 6 in.*	79%	69%	77 %	67 %
7 to 12 in.	74%	59%	72 %	56½%

Pipe, Vitrified Sewer—

Carload lots.

Standard Pipe and Fittings, 2 to 24 in.:
New England 68%
New York and New Jersey .. 71%
Maryland, Delaware, E. Pa. 75%
West. Pa. and West Va. 77%
Virginia 76%
Ohio, Michigan and Ky. 77%
Indiana 77%

NOTE.—Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8.00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—
Wood Planes—

Bench, first qual. ..... 40&10%
Bench, Second qual. ..... 60&10%
Molding ..... 33⅓&10%
Bailey's (Stanley R. & L. Co.) 40%
Chapin-Stephens Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Toy and German ..... 10@40&10%
Chaplin's 60%
Ohio Tool Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Adjustable Wood Bottom 60%
Unicn 60%

Iron Planes—

Bailey's (Stanley R. & L. Co.) 40%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) 35%
Ohio Tool Co.'s Iron Planes 60%
Sargent's ..... 60&10%
Union 60%

Plane Irons—

Wood Bench Plane Irons ..... 25&10@30%
Buck Bros. 30%
Chapin-Stephens Co. ..... 30@30&10%
Ohio Tool Co. 30%
Stanley R. & L. Co. 35%
Union 50%
L. & I. J. White ..... 20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse ..... ℔ doz. $3.50

Plates—

Felloe ..... lb. 3¾@4¼¢
Self-Sealing Pie Plates (S., S. & Co.), ℔ doz. $2.00 ..... 50%

Pliers and Nippers—

Button Pliers ..... 75&10@80%
Gas Burner, per doz., 5 in., $1.25 @ $1.30; 6 in., $1.45 @ $1.50.

Gas Pipe..	*7*	*8*	*10*	*12-in.*
	$2.00	$2.25	$3.00	$3.75

Acme Nippers ..... 50&5%
Cronk & Carrier Mfg. Co.:
American Button ..... 75&10%
Cronk's 60%
Stub's Pattern 50%
Combination and others 33⅓%
Heller's Farriers' Nippers, Pincers and Tools ..... 40&10@40&10&10%
The Nettleton Mfg. Co. Reversible Cutting Nippers 50%
P., S. & W. Tinners' Cutting Nippers 40%
Swedish Side, End and Diagonal Cutting Pliers 60%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and Levels ..... 30@30&10&10%
Chapin's Imp. Brass Cor. 40@40&10&10%
Pocket Levels ..... 30@30&10&10%
Disston's Plumbs and Levels 70%
Disston's Pocket Levels 10%
C. E. Jennings & Co.'s Iron 30%
C. E. Jennings & Co.'s Iron, Adjustable ..... 40&7½%
Stanley R. & L. Co. 45%
Stanley's Duplex 35%
Woods' Extension 33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ℔ doz., No. 1, $6.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00 ..... 50%

Points, Glaziers'—

Bulk and 1-lb. papers, lb. 8½@9 ¢
½-lb. papers ..... *lb.* 9 @9½¢
¼-lb. papers ..... *lb.* 9¾@10¼¢

Pokes, Animal—

Ft. Madison Hawkeye ..... ℔ doz. $3.25
Ft. Madison Western ..... ℔ doz. $4.00

Police Goods—

Manufacturers' Lists ... 25@25&5%
Tower's 25%

Polish—Metal, Etc—

Glasbrite, No. 2, 5 lb can (powder), each, $1.25; ℔ doz., $12.00; No. 2, 10 lb can (cake), each, $2.50; ℔ doz., $24.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $9.72.... 40%
Prestoline Paste 40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 90¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25; ℔ gro., $12.00.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75; ℔ gro., $18.00.
Wynn's White Silk, ½ pt. cans, ℔ doz. $2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can.... each, $0.65
Ladd's Black Beauty Liquid, per 100 tins $6.75
Joseph Dixon's, ℔ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ℔ lb 8¢
Fireside ..... ℔ gr. $2.50
Gem, ℔ gr. $4.50 ..... 10%
Japanese ..... ℔ gr. $3.50
Jet Black ..... ℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50
Wynn's:
Black Silk, 5 lb pail ..... each 70¢
Black Silk, ½ lb box ..... ℔ doz. $1.00
Black Silk, 5 oz. box ..... ℔ doz. $0.75
Black Silk, ½ pt. liq. ..... ℔ doz. $1.00

Poppers, Corn—

1 qt., Square ..... *gro.* $9.00
1 qt., Round ..... *gro.* $10.00
1½ qt., Square ..... *gro.* $11.00
2 qt., Square ..... *gro.* $13.00

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts ..... each $1.30

Potato Parers—

See *Parers, Potato.*

Pots, Glue—

Enameled 40%
Tinned 35%

Powder—

In Canisters:

Duck, 1 lb	*each*	45¢
Fine Sporting, 1 lb	*each*	75¢
Rifle, ½-lb	*each*	15¢
Rifle, 1-lb	*each*	25¢

In Kegs:

12½-lb. kegs	$3.50
25-lb. kegs	$4.50

King's Semi-Smokeless:

Keg (25 lb bulk)	$6.50
Half Keg (12½ lb bulk)	$3.50
Quarter Keg (6¼ lb bulk)	$1.90
Case 24 (1 lb cans bulk)	$8.50
Half case (1 lb cans bulk)	$4.50

King's Smokeless: Shot Gun. Rifle.

Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Robin Hood Sm'less Shot Gun.. 50&20%

Presses—
Fruit and Jelly—

Enterprise Mfg. Co. ..... 20@25%

Seal Presses—

Morrill's No. 1, ℔ doz., $20.00 ..... 50%

Pruning Hooks and Shears

See *Shears.*

Pullers, Cork—

Invincible Cork Puller $21.00

Pullers, Nail—

Cyclops 50%
Miller's Falls, No. 3, ℔ doz., $12.00. ..... 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 ..... 50%
Pearson No. 1, Cyclone Spike Puller, each $30.00 ..... 50%
Pelican, ℔ doz. $9.00 ..... 40&10%
Scranton, Case Lots:
No. 2B (large) $5.50
No. 3B (small) $5.00
Smith & Hemenway Co.:
Diamond B, No. 2, case lots. ℔ doz. $6.00
Diamond B, No. 3, case lots. ℔ doz. $5.50
Giant No. 1, ℔ doz. $18; No. 2, $16.50; No. 3, $15 ..... 33⅓%
Staple Pullers 60%
Parrot Tack and Stub Puller, ℔ doz., 75c.; ℔ gro., $6.00

Pulleys, Single Wheel—

Inch	1¼	1¾	2	3
Awning or Tackle, doz.	$0.50	.55	.60	1.05

Hay Fork, Swivel or Solid Eye. doz., ¼ in., $1.25; 5 in., $1.55

Inch	2	2¼	2½
Hot House, doz.	$0.65	.85	1.20
Inch	1¼	1½	1¾ 2
Screw, doz.	$0.16	.19	.23 .30
Inch	1¾	2	2¼ 2½
Side, doz.	$0.25	.40	.55 .60
Inch	1½	1¾	2 2½

Stowell's:
Ceiling or End, Anti-Friction.. 60&10%
Dumb Waiter, Anti-Friction.. 60&10%
Electric Light 60%
Side, Anti-Friction ..... 60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1¾ and 2 in. ..... 16@19¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in.. 16@19¢
Acme ..... 1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... ℔ doz. 50%
Grand Rapids All Steel Noiseless.. 50%
Ideal ..... 70&10%
Niagara ..... 1¾ in., 16¢; 2 in., 19¢
No. 26, Troy.. 1¾ in., 14½¢; 2 in., 16½¢
Star ..... 1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern ..... 60@60&10%
Pitcher Spout ..... 80@80&10%
Wood Pumps, Tubing, &c. 45@50%
Barnes Dbl. Acting (low list) 50%
Barnes' Pitcher Spout ..... 75&10&5%
Contractors' Rubber Diaphragm No. 2, B, & L. Block Co. $16.00
Daisy Spray Pump ..... ℔ doz. $6.75
Flint & Walling's, Fast Mail Hand, (low list) 55%
Flint & Walling's Fast Mail (low list) ..... 55&5%
Flint & Walling's Tight Top Pitcher. 80%
National Specialty Mfg. Co., Measuring, $6.00 ..... 30%
Mechanical Sprayer $6.00
Myers' Pumps (low list) 50%
Myers' Power Pumps 50%
Myers' Spray Pumps ..... 50&10%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch...	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch...	3	3¼	3½	3¾ 4
	$3.30	3.60	3.85	4.10 4.40

Plunger Cup Leathers—Per 100:

Inch...	2½	3	3½	4
	$2.75	3.85	5.00	6.00

Punches—

Saddlers' or Drive, good ..... *doz.* 50@75¢
Spring, single tube, good quality ..... $1.75@2.00
Revolving (4 tubes) ..... *doz.* $3.50@3.75
Bemis & Call Co.'s Cast St'l Drive. 50%
Bemis & Call Co.'s Check 55%
Morrill's Nos. 1AA, 1A, 1B, 1C, $15.00 ..... 50%
Hercules, 1 die, each $5.00 ..... 50%
Niagara Hollow Punches 40%
Niagara Solid Punches ..... 35&10%
Steel Screw, B. & K. Mfg. Co. 50%
Tinners' Hollow, P., S. & W. Co.... 40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44 ..... 60%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron .... 2½@2¾¢
Sliding Door, Wrought Brass, 1¼ in., lb., 36¢ 30%
Allith Mfg. Co.:
No. 1, Reliable Hgr. Track, ℔ ft. 5½¢
No. 2, Reliable Hgr. Track, ℔ ft. 7¢
Cronk's:
Double Braced Steel Rail.. ℔ ft. 2¾¢
O. N. T. Rail ..... 2½¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., 3.50.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, ℔ 100 ft., 1 in., $3.40; 1¼ in., $4.10.
O. N. T. ℔ 100 ft., 1 in., $2.75; 1¼ in., $3.50; 1½ in., $4.00.
Standard, 1¼ in. ..... ℔ 100 ft. $4.00
Lawrence Bros.:
℔ 100 ft. No. 201, $4.00; No. 202, $4.00
New York, 1 x 3-16 in., ℔ 100 ft. $2.75
McKinney's:
Hinged Hanger Rail, ℔ ft., 11¢.. 50%
None Better ..... ℔ ft. 3¾¢
Standard ..... ℔ ft. 4 ¢
Myers' Stayon Track ..... 60&10%
Richards' Mfg. Co.:
Common 1 x 3-6 in., $2.25; 1¼ x 3-16, $2.50; 1¼ x 3-16, $2.75.
Special Hinged Hanger Rail... 60&10%
Lag Screw Rail, No. 65 ..... 50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 29¢.
Safety Door Hanger Co.'s Storm King Safety 60%
Safety Door Hanger Co.'s U. S. Standard 60%
Stowell's:
Cast Rail ..... ℔ ft. 1¾¢
Steel Rail, Plain 25%
Wrought Bracket, 1 3-16 in.... ℔ ft. 3¢
Wrought Bracket, 1½ x 5-16.. ℔ ft. 7¢
Swett's Hylo, ℔ ft. 11¢ 60%
P. L. B. Steel Rail ..... ℔ 100 ft. $3.00
No. 0, 1 x 3-16 ..... ℔ 100 ft. $2.75

Rakes—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Fort Madison Red Head Lawn.... $3.25
Fort Madison Blue Head Lawn.... $2.70
Jackson Lawn, 29 and 30 teeth, ℔ doz., net $4.25
Cronk's:
New Champion Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00.. 75%
Victor Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00..... 80%
Queen City Lawn, ℔ doz., 20 teeth, $3.45; 24, $3.60 ..... net.
Anticlog Lawn, ℔ doz. $1.00
Malleable Garden ..... 70&10%
Kohler's:
Lawn Queen, 20-tooth ..... ℔ doz. $1.45
Lawn Queen, 24-tooth ..... ℔ doz. $1.60
Paragon, 20-tooth ..... ℔ doz. $2.75
Paragon, 24-tooth ..... ℔ doz. $3.00
Steel Garden, 14-tooth ..... ℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75 ..... 30%
Weldless Steel Garden ..... 75&10%

Rasps, Horse—

Disston's 75%
Heller Bros. ..... 70&5@70&10&10%
McCaffrey's American St'd.. 60&10&10%
New Nicholson ..... 70&10@75%
See also Files.

Razors—

Boras—I. C. 60%
Fox Razors, No. 42.. ℔ doz. $20.00
Fox Razors, No. 44.. ℔ doz. $20.00
Fox Razors, No. 82, Platina.... ℔ doz. $25.00
Red Devil 50%
Silberstein:
Carbo Magnetic $18.00
Griffon, No. 65 ..... $15.00
Griffon, No. 00 ..... $12.00
All other Razors 40%

Safety Razors—

Silberstein 40%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4068, Rubber, Populo, Nickeled Populo 20%
Aluminum German Silv., Bronze 25%
1240 N, 124 N 20%
3004 N, 06 N, 6 RM, G 9 ..... 25%
4 N, 6 PN, 24 N, 26 PN 20%
2904 P 33⅓%
2904 PN 33⅓%
0924 N 33⅓%
02084 N 33⅓%
002904 PN 33⅓%
802 N 33⅓%
986 PN, 2304 N, 974 PN 25%
5009 PN, 5009 N 20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR 20%
304 P, 304 PN, 00304 P, 00304 PN. 33⅓%

Registers—*List July 1, 1903.*

Japanned, Electroplated and Bronzed ..... 70&10%
Bronzed 75%

Revolvers—

Single Action ..... 95¢@$1.00
Double Action, except 44 cal. $1.85
Double Action, 44 caliber $2.00
Automatic $3.35
Hammerless $4.00
Thayer Robertson & Cary:
Automatic ..... each $2.75
Hammerless ..... each $3.25

Riddles, Hardware Grade

16 in. ..... *per doz.* $2.25@$2.50
17 in. ..... *per doz.* $2.50@$2.75
18 in. ..... *per doz.* $2.75@$3.00

Rings and Ringers—
Bull Rings—

	2	2½	3 *inch.*
Steel	$0.70	0.75	0.80 *doz.*
Copper	$1.00	1.15	1.40 *doz.*

Rea's Improved Self-Piercing, Copper, 2 in., ℔ doz., $1.25; 2½ in., $1.50; 3 in., $1.75.

Hog Rings and Ringers—

Hill's Rings, gro. boxes $4.00@4.50
Hill's Ringers, Gray Iron .... *doz.* 50@55¢
Hill's Ringers, Malleable Iron.. doz. 70@75¢
Blair's Rings... per gro. $4.75@5.25
Blair's Ringers. per doz. $0.60@.65
Brown's Rings.. per gro. $5.00@5.50
Brown's Ringers. per doz. $0.60@.65

Rivets and Burrs—

Copper ..... 50&10@50&10&5%
Iron or Steel ..... 75@75&5%

Rollers—

Acme, Stowell's Anti-Friction 50%
Barn Door, Sargent's list 60%
Cronk's Stay No. 65, . $0.90; No. 50 ..... $1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56 ..... $0.84
Lane's Stay 40%
Richards' Stay:
Handy Adj. and Reversible No. 53. 75¢
O. K. Adj. and Reversible No. 58. 50¢
Lag Screw, Nos. 55 and 57 ..... 50%
Underwriters', Nos. 59, 60 ..... 50%
Favorite, No. 54 ..... 60%
Stowell's Barn Door Stay.. ℔ doz. $1.00
Swett's Anti-Friction 50%
Screw and Spike Stay ..... ℔ doz. 65¢
Hinge Adjustable Stay ..... ℔ doz. 90¢

Rope—

Manila, 7-16 in. diam. and larger:
Pure ..... *lb.* 11¾@12¢
Sisal, 7-16 in. diam. and larger:
Pure ..... *lb.* 10¢
Sisal, 7-16 in. diam. and larger:
No. 2 quality ..... *lb.* 8¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Mixed ..... *lb.* 8¢
Pure ..... *lb.* 9¢
Sisal, Tarred, Medium Lath Yarn:
Mixed ..... *lb.* 7½¢
Pure ..... *lb.* 8½¢
Cotton Rope, on reels: *Lb.*
Best, ¼-in. and larger .16½@18¢
Medium, ¼-in. and larger. 15½@16½¢
Common, ¼-in. and larger .. 10¢
In coils, ½¢ advance.
Jute Rope:
Thread No. 1, ¼-in. & up. lb. 6½¢
Thread No. 2, ¼-in. & up, lb. 5½¢
Old Colony Manila Transmission Rope ..... ℔ lb 17½¢

Wire Rope—

Galvanized ..... 37½&2½%
Plain ..... 45&2½%

Ropes, Hammocks—
Covert Mfg. Co.:
Jute 50%
Sisal ..... 50&10%
Covert Saddlery Works..... 60&5%

Rulers, Desk—
Stimpson & Son:
Boxwood and Maple..... 30&10%

Rules—
Boxwood ..... 60&10&10%
Ivory ..... 35&10@35&10&5%
Chapin-Stephens Co.:
Boxwood ..... 60@60&10%
Flexifold ..... 27½&10&10&2½%
Ivory ..... 30@30&10&10%
Miscellaneous ..... 50@50&10&10%
Combination ..... 55@55&10%
Stationers' ..... 10@10&10%
Keuffel & Esser Co.:
Folding, Wood..... 35&10%
Folding, Steel..... 33⅓&10%
Lufkin's Steel..... 50&10%
Lufkin's Lumber..... 60%
Stanley R. & L. Co.:
Boxwood 62½%
Ivory 45%
Miscellaneous 40%
Zig Zag..... 40%
Zig Zag, Pin Joint..... 42½%
Upson Nut Co.:
Boxwood ..... 60@60&10%
Ivory ..... 35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—
See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 50%
Band ..... 50&10@60%
Cross Cuts..... 35&5%
Mulay, Mill and Drag..... 50%
One-Man Saw..... 40%
Wood Saws..... 40%
Hand, Compass, &c..... 40%
Chapin-Stephens Co.:
Turning Saws and Frames..30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws..... 50&10&10%
Disston's:
Circular, Solid and Ina'ted Tooth..50%
Band, 2 to 14 in. wide..... 60%
Band, ¼ to 1¾..... 60%
Crosscuts 50%
Narrow Crosscuts..... 55%
Mulay, Mill and Drag..... 50%
Framed Woodsaws..... 35%
Woodsaw Blades..... 35%
Woodsaw Rods..... 25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8..... 25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination..... 30%
Compass, Key Hole, &c..... 25%
Butcher Saws and Blades..... 35%
C. E. Jennings & Co.'s:
Back Saws..... 25%
Butcher Saws..... 30%
Compass and Key Hole Saws..35&5%
Framed Wood Saws..... 30%
Hand Saws..... 20&2½%
Wood Saw Blades..... 35%
Millers Falls:
Butcher Saws..... 15&10%
Star Saw Blades..... 15&10%
Peace & Richardson's Hand Saws...30%
Simonds':
Circular Saws..... 50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts..... 40&10%
Gang Mill, Mulay and Drag Saws.50%
Band Saws..... 50%
Back Saws..... 25@25&7½%
Butcher Saws..... 35@35&7½%
Hand Saws..... 25@25&7½%
Hand Saws, Bay State Brand..... 45%
Compass, Key Hole, &c..25@25&7½%
Wood Saws..... 35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws....40&10@50%
Butcher Saws Blades..... 35@40%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws..... 50%

Hack Saws—
Atkins' Hack Saw Blades A A A A..25%
Disston's:
Concave Blades..... 25%
Keystone 40%
Hack Saw Frames..... 30%
Fitchburg File Works, The Best...35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180..... 40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades..... 40%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades..... 35%
Diamond Hack Saw Frames..... 50%
Star Hack Saws and Blades..... 15&10%
Sterling Hack Saw Blades....30&10&5%
Sterling Hack Saw Frames...30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00..10%
Victor Hack Saw Blades..... 25%
Victor Hack Saw Frames..... 40%

Scroll—
Barnes' No. 7, $15..... 25%
Barnes' Scroll Saw Blades..... 40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20..... 25%
Lester, complete, $10.00..... 15&10%
Rogers, complete, $4.00..... 15&10%

Scalers, Fish—
Covert's Saddlery Works..... 60&10%

Scales—
Family, Turnbull's....50@50&10%
Counter:
Hatch, Platform, ½ oz. to ¼ lbs. ..... doz. $5.50
Two Platforms, ½ oz. to 8 lbs. ..... doz. $16.00
Union Platform, Plain.$1.70@1.90
Union Platform, Stpd.$1.85@2.15
Chatillon's:
Eureka 25%
Favorite 40%
Crocers' Trip Scales..... 50%
Chicago Scale Co.:
The "Little Detective"....25 lbs 50%
Union or Family No. 2..... 60%
Portable Platform (reduced list)..50%
Wagon or Stock (reduced list).25@35%
"The Standard" Portables..... 50%
"The Standard" R. R. and Wagon.50%

Scrapers—
Box, 1 Handle.....doz. $2.00@2.25
Box, 2 Handle.....doz. $2.60@2.85
Ship....Light, $2.00; Heavy, $4.50
Adjustable Box Scraper (S. R. & L. Co.), $6.00..... 45%
Chapin-Stephens Co., Box, 30@30&10&10%

Screens, Window and Frames—
Air Line Pattern Screens..... 60&10%
Flyer Pattern Screens..60&10@60&10&5%
Maine Screen Frames..... 40&10&5%
Perfection Screens..... 60&10@60&10&5%
Phillips' Screen Frames...60&5@60&10%
See also *Doors.*

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@2.75; 1¼, $3.00@3.25; 1¼, $3.50@3.75
Bench, W'd, Beech.doz. 30@30&5%
Hand, Wood..... 30@30&5%
R. Bliss Mfg. Co., Hand....30@30&10%
Chapin-Stephens Co., Hand..30@30&10%
Ohio Tool Co., Bench and Hand..30%

Coach, Lag and Hand Rail—
Lag, Cone Point, list Oct. 1, '99 ..... 75&17½&10%
Coach, Gimlet Point, list Oct. 1, '99..... 75&12½&10%
Hand Rail, list Jan. 1, '81.... 70&10@75%

Jack Screws—
Standard List..... 80@80&5%
Millers Falls..... 50&10&10%
Millers Falls, Roller..... 50&10%
P., S. & W..... 50%
Sargent ..... 70&10%
Swett Iron Works..... 75&10@80&5%

Machine—
List Jan. 1, '98:
Flat or Round Head, Iron.... 50@50&10%
Flat or Round Head, Brass.... 50@50&10%

Set and Cap—
Set (Iron)..... 80%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap..... 75%
Hex. Hd. Cap..... 75%
Rd. Hd. Cap..... 60&10%
Fillister Hd. Cap..... 60&10&10%

Wood—
List July 23, 1903.
Flat Head, Iron.....87½&10@..%
Round Head, Iron...85 &10@..%
Flat Head, Brass....85 &10@..%
Round Head, Brass..80 &10@..%
Flat Head, Bronze...77½&10@..%
Round Head, Bronze.75 &10@..%
Drive Screws..... 87½&10%

Scroll Saws—
See *Saws, Scroll.*

Scythes—
	Per doz.
Grass, No. 1, Plain Finish...	*$6.25*
Clipper, Bronzed Webb....	*$6.50*
No. 3 Clipper, Pol'd Webb..	*$6.75*
No. 6 Clipper & Solid Steel.	*$7.00*
Bush, Weed & Bramble, No. 2.	*$6.50*
Grain, No. 1.....	*$8.25*
Bronzed Webb, No. 1.....	*$8.50*
Nos. 3 & 4 Clipper, Grain..	*$8.75*
Solid Steel No. 6.....	*$9.25*

Seeders, Raisin—
Enterprise ..... 25@30%

Sets—Awl and Tool—
Aiken's Sets, Awl and Tools:
No. 20, ℔ doz., $10.00..... 60&10%
Fray's Adj. Tool Handles, Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7..... 50%
C. E. Jennings & Co.'s Model Tool Holders 30%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18....15&10%

Garden Tool Sets—
Ft. Madison Three Plows, Hoe, Rake and Shovel..... ℔ doz sets $9.00

Sets, Nail—
Octagon .....gro. $3.50@3.75
Buck Bros..... 27½%
Cannon's Diamond Point, ℔ gro.$12.40%
Mayhew's ..... ℔ gro. $9.00
Snell's Cor'gated, Cup Pt... ℔ gro. $7.20
Snell's Knurled, Cup Pt.... ℔ gro. $7.20
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt. ℔ gro. $7.50

Rivet—
Regular list..... 75@75&10%

Saw—
Aiken's:
Genuine ..... 50&10%
Imitation ..... 50&10%
Atkin's:
Criterion 40%
Adjustable 40%
Bemis & Call Co.'s:
Cross Cut..... 30%
Plate 20%
Disston's Star and Monarch..... 25%
Morrill's No. 1, $15.00..... 50%
Nos. 3 and 4, Cross Cut, $20.00...50%
No. 5, Mill, $30.00..... 50%
Nos. 10, 11, 95, $15.60..... 50%
No. 1 Old Style, $10.00..... 50%
Special, $16.25..... 50%
Giant Royal Cross Cut.... ℔ doz. $8.00
Royal, Hand..... ℔ doz. $4.50
Taintor Positive..... ℔ doz. $6.75

Shaving—
Fox Shaving Sets, No. 30..... ℔ doz., net, $24.00
Smith & Hemenway Co.'s..... 60%

Sharpeners, Knife—
Chicago Wheel & Mfg. Co..... 70%
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz..... $1.50
Mounted Kitchen Sand Stone, ℔ doz..... $1.50
Natural Grit Carving Knife Hones, ℔ doz..... $3.00
Quick Cut Emery Carving Knife Hones, ℔ doz..... $1.50
Quick Edge Pocket Knife Hones, ℔ doz..... $2.50
} 40%

Skate—
Smith & Hemenway Co..... 20%

Shaves, Spoke—
Iron .....doz.$1.10@1.25
Wood .....doz.$1.75@2.25
Bailey's (Stanley R. & L. Co.)..... 45%
Razor Edge (Stanley R. & L. Co.)..35%
Chapin-Stephens Co.....30@30&10&10%
Goodell's, ℔ doz. $9.00..... 15&10%
Wood's F1 and F2..... 50%

Shears—
	7	*8*	*9 in.*	
Cast Iron..				
Best	*$16.00*	*18.00*	*20.00*	*gro.*
Good ...	*$13.00*	*15.00*	*17.00*	*gro.*
*Cheap .. *	*$5.00*	*6.00*	*7.00*	*gro.*

Straight Trimmers, &c.:
Best quality Jap....70@70&10%
Best quality, Nickel..60@60&10%
Fair quality, Jap....80@80&5%
Fair quality, Nickel..75@75&10%
Tailors' Shears..... 40@40&10%
Acme Cast Shears..... 40@40&5%
Heinisch's Tailor's Shears..... 10%
Wilkinson's Sheep, 1900 list..... 50&10%

Tinners' Snips—
Steel Blades..... 20&5@20&10%
Steel Laid Blades.....40&10@50%
Forged Handles, Steel Blades, Berlin, 50@50&5%
Heinisch's Snips..... 40%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 in..... 50%
Niagara Snips..... 40%
P., S. & W. Forged Handles..... 20%

Pruning Shears—
Cronk's Hand Shears..... 33⅓%
Cronk's Wood Handle Shears....33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz. $18.00..... 25%
Disston's Pruning Hook, ℔ doz. $12.00 ..... 25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades....50&10%
P., S. & W. Co..... 33⅓%
Wilkinson's Hedge, 1900 list..... 50&10%
Wilkinson's Lawn and Border..... 50%

Sheaves—Sliding Door—
Stowell's Anti-Friction..... 50%
Patent Roller, Hatfield's, Sargent's list ..... 70&10%
Reading 40%
R. & E. list..... 33⅓%
Wrightsville Hatfield Pattern..... 80%

Sliding Shutter—
Reading list..... 40%
R. & E. list..... 33⅓%
Sargent's list..... 10&10%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, Club, Rival, 10 and 12 gauge ..... 65&10%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge.25&10%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge ..... 20&5%
Climax, Union, League, New Rival, 10 and 12 gauge..... 25&5%
Climax, Union, League, New Rival, 14, 16 and 20 gauge..... 20&5%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge..... 33⅓&5%
Robin Hood, Low Brass..... 20&10%
Robin Hood, High Brass..... 30&10%

Shells, Loaded—
Loaded with Black Powder..40%
Loaded with Smokeless Powder, medium grade..... 40&5%
Loaded with Smokeless Powder, high grade..... 40&10&10%
Robin Hood Smokeless Powder:
Robin Hood, Low Brass..... 50%
Comets, High Brass..... 50&10&5%

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron .....per keg $4.00
Steel .....per keg $3.75
Burden's, all sizes..... ℔ keg $3.90

Shot—
Drop, up to B, 25-lb. bag....$1.70
Drop, B and larger..... per 25-lb. bag, $1.95
Buck, 25-lb. bag.....$1.95
Chilled, 25-lb. bag.....$1.95

Shovels and Spades—
Association List, Nov. 15, 1902..40%

Sieves and Sifters—
Hunter's Imitation..... gro. $10.50@11.00
Hunter's Genuine..... per gro. $12.00@12.50
Buffalo Metallic Blued, S. S. Co., ℔ gr.:

14&16	16&18	18&20
$13.20	$13.50	$14.40

Shaker (Barler's Pat.) Flour Sifters, ℔ doz., $2.00..... 20%

Sieves, Seamless Metallic
	Per dozen.			
Mesh	*14*	*16*	*18*	*20*
Iron Wire....	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire..	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested....doz. $0.90@0.95
Mesh 20, Nested....doz. $1.00@1.05
Mesh 24, Nested....doz. $1.30@1.40

Sinks, Cast Iron—
Standard list..... 60@60&10%
Barnes' low list..... 60&5%

NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron..... 80@80&10%
Steel ..... 40@40&10%

Slates, School—
Factory Shipments.
"D" Slates..... 50@50&10%
Eureka, Unexcelled Noiseless.. 60&5 tens
Victor A, Noiseless..... 60&5 tens &5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German ..... 40@40&10%
Covert Mfg. Co.:
Derby ..... 30&2%
High Grade..... 40%
Jockey 35%
Trojan 40%
Yankee ..... 30&2%
Yankee Roller..... 30&2%
Covert's Saddlery Works:
Crown 60%
German 60%
Model 60%
Triumph 60%
Oneida Community:
Harness Snaps, 1 inch..... 60&5%
Swivel Snaps..... 60%
Swivels 50%
Sargent's Patent Guarded....66⅔&10%

Snaths—
Scythe 50%

Snips, Tinners—See *Shears.*

Spoons and Forks—Silver Plated—
Good Quality.....50&10@60&5%
Cheap ..... 60@60&10%
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton ..... 40&10%
Rogers & Bro., William Rogers' Eagle Brand..... 50&10%
Anchor, Rogers Brand..... 60%
Wm. Rogers & Son..... 60&10%

Miscellaneous—
German Silver..... 60@60&5%
Cattaraugus Cutlery Co.:
Seneca, Silver..... 50%

Tinned Iron—
Teas .....per gro. 45@50¢
Tables.....per gro.$0.50@$1.00

Springs—Door—
Chicago (Coil)..... 40&10%
Gem (Coil)..... 20%
Pullman (Coil)..... 25%
Reliance (Coil)..... 40&10%
Star (Coil)..... 30%
Torrey's Rod, 39 in..... ℔ doz. $1.10
Victor (Coil)..... 50&10&10%

Carriage, Wagon, &c.—
	Per lb.
1¼ in. and Wider:	
Black	*4@4¼¢*
Half Bright.....	*4@4¼¢*
Bright	*4½@4¾¢*

Painted Seat Springs:
1½ x 2 x 26.....per pr. 42¢
1½ x 3 x 28.....per pr. 70¢

Sprinklers, Lawn—
Enterprise ..... 25@30%
Philadelphia No. 1, ℔ doz. $12; No. 2, $15; No. 3, $24..... 30%
Pleuger & Henger Mfg. Co.:
Cactus 70%
Japanese 75%
Nationals 65%

Squares—
Nickel plated.. } *List Jan. 5, 1900.*
Steel and Iron. } *75&5@75&10%*
Rosewood Hdl. Try Square and T-Bevels .....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels .....40&10@40&10&10%
Disston's Try Sq. and T-Bevels..70%
Winterbottom's Try and Miter, No. 1, 40%; No. 2..... 50%

Squeezers, Lemon
Wood, Common, gro., No. 0, $5.25@$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap .....doz. $1.00
Good Grade.....doz. $1.25
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined...doz. $1.75

Staples—
Barbed Blind.....lb. 6@6½¢
Electricians', Association list.. 80&10&10&10%
Fence Staples, Plain, $2.25; Galvanized $2.55
Poultry Netting Staples..... per lb. 3½@3½¢
Grand Crossing Tack Co.'s list..80&10%

Steels, Butchers'—
Dick's 30%
Foster Bros..... 30%
C. & A. Hoffmann's..... 40%

Steelyards—....30@30&10%

Stocks and Dies—
Blacksmiths'.....50@50&10%
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates..... 25%
Green River..... 25%
Lightning Screw Plate..... 25%
Little Giant..... 25%
Reece's New Screw Plates..... 25%

Stoners, Cherry—
Enterprise ..... 25@30%

Stones—Oil, &c.
Chicago Wheel & Mfg. Co., 1904 list:
Gem Corundum Oil, Double Grit.60%
Gem Corundum Axe, Single or Double Grit..... 60%
Gem Corundum Slips..... 60%
Gem Corundum Razor Hones....50%
Pike Mfg. Co., 1904 list: ℔ lb.
Arkansas St. No. 1, 3 to 5½ in. $2.20
Arkansas St. No. 1, 5½ to 8 in. $3.50
Arkansas Slips No. 1..... $4.00
Lily White Washita, 4 to 8 in. 60¢
Rosy Red Washita, 4 to 8 in. 60¢
Washita St., Extra, 4 to 8 in. 50¢
Washita St., No. 1, 4 to 8 in. 40¢
Washita St., No. 2, 4 to 8 in. 30¢
Lily White Slips..... 90¢
Rosy Red Slips..... 90¢
Washita Slips, Extra..... 80¢
Washita Slips, No. 1..... 70¢
Washita Slips, No. 2..... 40¢
} 33⅓%

India Oil Stones (entire list)....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%
Quickcut Emery Rubbing Bricks.33⅓%
Hindostan No. 1, R'g'lar.₱ lb 8¢
Hindostan No. 1, Small..₱ lb 10¢
Axe Stones (all kinds).....
Turkey Oil Stones, Extra, 5 to 8 in.....₱ lb 80¢
Queer Creek Stones, 4 to 8 in.20¢
Queer Creek Slips.....40¢
Sand Stone.....6¢

} 33⅓%

Scythe Stones—

Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 in., $8.00 ₱ gro., 12 in., $10.80.
Norton Emery Scythe Stones:
Less than gross lots.....₱ gro. $9.00
One gross or more.....₱ gro. $7.20
Lots of 10 gross or more..₱ gro. $6.00
Pike Mfg. Co., 1901 list:
Black Diamond S. S..₱ gro. $12.00
Lamoille S. S.....₱ gro. $11.00
White Mountain S. S.₱ gro. $9.00
Green Mountain S. S..₱ gro. $6.00
Extra Indian Pond S.S.₱ gro. $7.50
No. 1 Indian Pond S.S.₱ gro. $7.00
No. 2 Indian Pond S.S.₱ gro. $4.50
Leader Red End S. S.₱ gro. $4.50
Quick Cut Emery....₱ gro. $10.00
Pure Corundum,.....₱ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat, $8
Emery Scythe Rifles, 3 Coat, $10
Emery Scythe Rifles, 4 Coat, $12
Balance of 1904 list 33⅓%

} 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers.....₱ gro. $9.00

Stops— Bench—

Millers Falls.....15&10%
Morrill's, ₱ doz., No. 1, $10.00.....50%
Morrill's, No. 2, $12.50.....50%

Door—

Chapin-Stephens Co.....60@60&10%

Plane—

Chapin-Stephens Co.....20%

Straps— Box—

Cary's Universal, case lots..20&10&10%

Hame—

Covert's Saddlery Works.....60&10%

Stretchers, Carpet—

Cast Iron, Steel Points, doz. 60@60&10%
Socket .....doz. $1.60
Excelsior Stretcher and Tack Hammer Combined, ₱ doz. $6.00.....20%

Stuffers, Sausage—

Enterprise Mfg. Co.....25@25&7½%
National Specialty Co., list Jan. 1, 1902 .....30&5%

Sweepers, Carpet—

National Sweeper Co.: ₱ doz.
Louis XV, Roller Bearing, Gold Plated $120.00
Hepplewhite, Roller Bearing, Silver Plated.....$72.00
Sheraton, Roller Bearing, N'kel.$60.00
Ye Mission, Roller Bearing, Oxidized Coppered.....$36.00
Transparent, Roller Bearing, Plate Glass top, Nickeled.....$36.00
National Queen, Roller Bearing, Fancy Veneers.....$27.00
Loyal, Roller Bearing, Veneers, Nickeled $25.00
Triple Medal, Roller Bearing, Nickeled $24.00
Marion, Roller Bearing, N'kel.$24.00
Marion Queen, Roller Bearing, Nickeled $24.00
Monarch, Roller Bearing, N'kel.$22.00
Monarch, Roller Bearing, Jap..$20.00
Perpetual, Regular B'r'gs, N'kel.$20.00
Perpetual, Regular B'r'gs, Jap..$18.00
Monarch Extra (17 in, case), Roller Bearing, Nickeled.....$36.00
Monarch Extra (17 in, case), Roller Bearing, Japanned.....$33.00
Auditorium (26 in. case), Roller Bearing, Nickeled.....$54.00
Mammoth (30 in, case), Roller Bearing, Nickeled.....$60.00

NOTE.—Rebates: 50¢ per dozen on three-dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five-dozen lots.

Streator Metal Stamping Co.:
Model E, Sanitaire.....₱ doz $25.00
Model A, Sterling.....₱ doz. $25.00
Model B, Sterling, Nickeled..... ₱ doz. $23.00
Model B, Sterling, Japanned..... ₱ doz. $21.00
Model C, Sterling.....₱ doz. $21.50
Model D, Sterling.....₱ doz. $19.50

Tacks, Finishing Nails, &c.

New List, May 1, 1905.
American Carpet Tacks..90@37½%
American Cut Tacks....90@37½%
Swedes Cut Tacks.....90@37½%
Swedes Upholsterers' Tacks... 90&50%
Gimp Tacks.....90&50%
Lace Tacks.....90&50%
Trimmers' Tacks.....90@37½%
Looking Glass Tacks.....65%
Bill Posters' and Railroad Tacks, 90&50%
Hungarian Nails.....85%
Finishing Nails.....70%
Trunk and Clout Nails....80&5%

NOTE.—The above prices are for Standard Weights. An extra 5% is given on Medium Weights, and an extra 10&5% is given on light weights.

Miscellaneous—

Double Pointed Tacks..... 90&6 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co.'s list .....50&10@60%
See also Nails, Wire.

Tanks, Oil— Each.

Emerald, S., S. & Co.....30-gal. $3.40
Emerald, S., S. & Co.....60-gal. $4.25
Queen City, S., S. & Co....30-gal. $3.65
Queen City, S. S. & Co....60-gal. $4.50

Tapes, Measuring—

American Asses' Skin ..59@—%
Patent Leather.....25@30&5%
Steel .....33 1-3&5%
Chesterman's .....25@25&5%
Eddy Asses' Skin.....40&10@50%
Eddy Patent Leather.....25@30&5%
Eddy Steel.....40@40&10%
Kenffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list..... 35@35&5%
Pocket .....35@35&5%
Lufkin's:
Asses' Skin.....40&10@50%
Metallic .....30@30&5%
Patent Bend, Leather....25&5@25&10%
Pocket .....40@40&5%
Steel .....33⅓@35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger... per 100 lbs. $3.00

Thermometers—

Tin Case.....80&10@80&10&5%

Ties, Bale—Steel Wire—

Single Loop.....80&2½%
Monitor, Cross Head, &c....70%

Brick Ties—

Niagara Brick Ties.....25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works.....60&10%

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White.....20@20&5%

Hay—

Myers' Hay Tools.....50%
Stowell's Hay Carriers.....50%
Stowell's Hay Forks.....50%
Stowell's Fork Pulleys.....50%

Miniature—

Smith & Hemenway Co.'s.....25%

Saw—

Atkins' Cross Cut Saw Tools.....40%
Simonds' Improved.....33⅓%
Simonds' Crescent.....25%

Ship—

L. & I. J. White.....25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz. $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz. $1.25@1.40; gro. $13.00@13.50

Game—

Oneida Pattern...75&10@75&10&5%
Newhouse .....45@45&5%
Hawley & Norton.....65%
Victor .....70&10%
Oneida Community Jump.....50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 8½@9¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, each $1.21; ₱ doz. $13.25
No. 3, Rat, ₱ doz. $6.50; case of 50 $5.75 doz.
No. 3½, Rat, ₱ doz. $5.25; case of 72 ₱ gro. $4.70 doz.
No. 4, Mouse, ₱ doz. $3.85; case of 150 $3.00 doz.
No. 5, Mouse, ₱ doz. $3.00; case of 150 $2.25 doz.

Trimmers, Spoke—

Wood's E I.....50%

Trowels—

Disston Brick and Pointing.....30%
Disston Plastering.....25%
Disston "Standard Brand" and Garden Trowels.....35%
Kohler's Steel Garden Trowels, 5 in. ₱ gro. $1.80
Kohler's Steel Garden Trowels, 6 in. ₱ gro. $6.00
Never-Break Steel Garden Trowels.. ₱ gro. $6.00
Rose Brick and Plastering.....25&5%
Woodrough & McParlin, Plastering.25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern.....50&10%
Western Pattern.....60&10%
Handy Trucks.....₱ doz. $16.00
Grocery .....₱ doz. $15.00
Daisy Stove Trucks, Improved Pattern .....₱ doz. $18.50
McKinney Trucks.....each $10.00
Model Stove Trucks.....₱ doz. $18.50

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$4.25*	*4.75*	*5.25*

Galvanized Wash Tubs (S., S. & Co.):

No.	1	2	3	10	20	30
Per doz., net	$5.70	6.30	7.20	6.60	7.20	8.10

Twine, Miscellaneous—

Flax Twine:	*BC.*	*B.*
No. 9, ¼ and ½-lb. Balls	*.22@24¢*	
No. 12, ¼ and ½-lb. Balls	*.18@20¢*	
No. 18, ¼ and ½-lb. Balls	*.16@18¢*	
No. 24, ¼ and ½-lb. Balls	*.16@18¢*	
No. 36, ¼ and ½-lb. Balls	*.15@17¢*	
Chalk Line, Cotton ½-lb. Balls	*.25@30¢*	
Cotton Mops, 6, 9, 12 and 15 lb. to doz	*.10@18¢*	
Cotton Wrapping, 5 Balls to lb., acording to quality...	*11½@20¢*	
American 2-Ply Hemp, ¼ and ½-lb. Balls	*.13@14¢*	
American 3-Ply Hemp, 1-lb. Balls	*.13@14¢*	
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine)	*.....*	*8½¢*
India 3-Ply Hemp, 1-lb. Balls	*.....*	*8½¢*
India 3-Ply Hemp, 1½-lb. Balls	*.....*	*7@8¢*
2, 3, ¼ and 5-Ply Jute, ½-lb. Balls	*.....*	*9@10¢*
Mason Line, Linen, ½-lb. Bls.	*.....*	*16¢*
No. 26½ Mattress, ¼ and ½-lb. Balls	*.....*	*37¢*
Wool, 3 to 6 ply....	*B 5½¢*	*; A 6¢*

Vises—

Solid Box.....60%

Parallel—

Athol Machine Co.:
Simpson's Adjustable.....40%
Standard 40%
Amateur 25%
Columbian Hdw. Co.....40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50.
Machinist and Tool Makers' No. 4A, $12.50; No. 5A, $7.00; No. 6A, $10.00; No. 10A, $22.50.
Presto Quick Acting.....25@25&5%
Tiger Machinists'.....40%
Fisher & Norris Double Screw..15&10%
Hollands':
Machinists' .....40@40&5%
Keystone .....65&5@70%
Lewis Tool Co.:
Adjustable Jaw.....30%
Monarch 50%
Solid Jaw.....50%
Merrill's 20%
Millers Falls.....60&10%
Massey Vise Co.:
Clincher 40%
Perfect 20%
Lightning Grip.....20%
Parker's:
Victor .....20@25%
Regulars .....20@25%
Vulcan's .....40@45%
Combination Pipe.....55@60%
Prentiss .....20@25%
Sargent's 40%
Snediker's X. L.....33⅓%
Stephens' 33⅓%
Williamson Mfg Co, Double Swivel.. 40&5%

Saw Filers—

Disston's D 3 Clamp and Guide, ₱ doz. $30..... 25%
Perfection Saw Clamps, ₱ doz....$4.50
Reading 60%
Wentworth's Rubber Jaw, Nos. 2 and 3.....45&50%

Wood Workers—

Massey Vise Co.:
Lightning Grip.....15%
Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Bignall & Keeler Combination Pipe Vise .....60&10%
Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe.....40%
Parker's Combination Pipe:
87 Series.....60%
137 Series.....60&5%
No. 870.....40%
Williamson Mfg. Co, Double Swivel Combination Pipe.....40&5%

Wads—*Price per M.*

Dis. 15%

B. E., 11 up	*.....60¢*
B. E., 9 and 10	*.....70¢*
B. E., 8	*.....80¢*
B. E., 7	*.....80¢*
P. E., 11 up	*.....$1.00*
P. E., 9 and 10	*.....1.25*
P. E., 8	*.....1.50*
P. E., 7	*.....1.50*
Ely's B. E., 11 and larger.	*$1.70@1.75*
Ely's P. E., 12 to 20....	*$3.00@3.25*

Ware, Hollow—Cast Iron, Hollow—

Stove Hollow Ware:
Enameled 55%
Ground 60%
Plain or Unground.....65%
Country Hollow Ware, per 100 lbs. $2.75
White Enameled Ware:
Maslin Kettles.....70%
Covered Wares
Tinned and Turned.....40%
Enameled 50%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware.....60%
Iron Clad Ware.....70&10%
Lava, Enameled.....40&10%
Never Break Enameled.....50%

Tea Kettles—

Galvanized Tea Kettles:

Inch	*6*	*7*	*8*	*9*
Each	*45¢*	*50¢*	*55¢*	*65¢*

Steel Hollow Ware—

Avery Spiders and Griddles..65@65&5%
Avery Kettles.....60%
Porcelained .....50&50&50&10%
Never Break Spiders and Griddles.. 65&5%
Never Break Kettles.....60%
Solid Steel Spiders and Griddles.65&5%
Solid Steel Kettles.....60%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

Solid Zinc: ₱ doz.
Crescent, family size, bent frame.$3.25
Red Star, family size, stationary protector $3.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$2.90
Cable Cross, family size, stationary protector.....$3.15
Single Zinc Surface:
Naiad, family size, open back, perforated $2.65
Saginaw Globe, protector, family size, ventilated back.....$2.50
Brass Surface:
Brass King, Single Surface, open back $3.25
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.25
Glass Surface:
Glass King, Single Surface, open back $3.25
Enamel Surface:
Enamel King, Single Surface, ventilated back.....$3.25

Washers—Leather, Axle—

Solid .....80&10@80&10&10%
Patent .....90@90&5%
Coil:

	⅛	1	1⅛	1¼ Inch.
	10¢	*11¢*	*12¢*	*13¢ per box*

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers ...$5.20 4.30 3.00 2.80 2.60
In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Cast Washers—

Over ½ inch, barrel lots..... per lb. 1¾@2¢

Weather Strip—Flexible Felt—

Lined, per 100 ft., $2; $3; $4.....40&10%
Moore's Unlined, per 100 ft., $2; $3; $4 .....50&10%

Wedges—

Oil Finish.....lb. 2.15@2.30¢

Weights—Hitching—

Covert Mfg. Co.....40&2%
Covert's Saddlery Works.....60&10%

Sash—

Per ton, f.o.b. factory:
Eastern District...$27.50@28.00
Southern Territory..$20.00@$25.00
Western and Central Districts .....$23.00@$25.00

Wire and Wire Goods—

Bright and Annealed:
6 to 9.....80&5@80&7½%
10 to 18.....80@80&5%
19 to 26.....80&10@80&10&5%
27 to 36.....80&5@80&10%
Galvanized:
6 to 9.....77½@77½&5%
10 to 14.....72½@72½&5%
15 to 16.....75&7½@75&10&2½%
19 to 26.....75&5@75&10%
27 to 36.....72½&5@72&7½%
Coppered:
6 to 9.....77½@77½&5%
10 to 14.....77½@77½&7½%
15 to 18.....75&10@75&10&2½%
19 to 26.....75&10&5@80%
27 to 36.....75@75&5%
Tinned:
6 to 14.....77½@77½&7½%
15 to 18.....75&5@75&10%
Annealed, Steel and Tinned, on Spools ..70&10&10@70&10&10&10%
Brass and Copper on Spools... 60&5@60&10&5%
Brass, list Feb. 26, '96.....20%
Copper, list Feb. 26, '96.....25%
Cast Steel Wire.....50%
Wire Clothes Line, see Linen.
Wire Picture Cord, see Cord.

Bright Wire Goods—

List June 24, 1903.....90&40%

Wire Cloth and Netting—

Galvanized Wire Netting..... 80&15@80&17½%
Painted Screen Cloth, 100 ft., $1.20
Standard Galv. Hardware Grade:
Nos. 2, 2½ & 3 Mesh, sq. ft..3 ¢
Nos. 4 and 5 Mesh, sq. ft..3¼ ¢
No. 6 Mesh, sq. ft.....3½ ¢
No. 8 Mesh, sq. ft.....4 ¢

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural ....75&10@75&10&10%
Alligator or Crocodile..70&10@75%
Baxter Pattern S Wrenches... 70&5@70&10%
Drop Forged S.....45@45&5%
Acme .....60&10%
Alligator Pattern.....20%
Bull Dog.....70%
Bemis & Call's:
Adjustable S.....40%
Adjustable S Pipe.....45%
Bemis Pipe.....60%
Briggs Pattern.....40%
Combination Black.....40&5%
Combination Bright.....40%
Merrick Pattern.....50%
Boardman's 60%
Coes' Genuine Knife Hdl..40&10&5&5%
Coes' Genuine Steel Hdl..40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes', Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle .....50&10%
Elgin Wrenches, ₱ doz.....$6.25
Elgin Rethreading Attachment, one die, ₱ doz.....$6.25
Elgin Extra Dies, ₱ doz.....$3.00
Elgin Extra Jaws, ₱ doz.....$1.75
Elgin Monkey Wrench Pipe Jaws, ₱ doz.....$2.10
Gem Pocket.....30%
Hercules 70%
W. & B. Machinist:
Case lots.....50&5%
Less than case lots.....50%
Improved Pipe (W. & B.).....60%
Solid Handles, P., S. & W....50&10&10
Stillson 65%
Vulcan Chain.....50%

Fruit Jar—

Triumph Fruit Jar Wrench, 5 gross lots, ₱ gross, $7.50; ₱ doz.....$0.80

Wringers—

Tuttle Roller Press Mop Pail Wringer, each, $8.00; ₱ doz.....$48.00

Wrought Goods—

Staples, Hooks, &c., list March 17, '92.....90@90&10%

Yokes, Neck—

Covert Saddlery Works, Trimmed 70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters'.....list net

Zinc—

Sheet.....per 100 lbs., $7.75@8.00

For the Table of "Current Metal Prices" see the First Issue of Every Month.